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Continuous Rural Ozone Data Collection in the Northeast United States

Environmental Research and Technology, Inc.
Concord, MA

Prepared for

Environmental Protection Agency
Research Triangle Park, NC

Nov 80

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Continuous Rural Ozone Data Collection in the Northeast United States

by

Environmental Research and Technology, Inc.
696 Virginia Road
Concord, Massachusetts 01742

Contract No. 68-02-3522

EPA Project Officer: Edward J. Hanks, Jr.

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air, Noise, and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

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ABSTRACT

This report presents rural ozone data collected in the Northeast United States during the summer period of July 1 to September 12, 1980. The monitoring was performed at four former Electric Power Research Institute-Sulfate Regional Experiment (EPRI-SURE) monitoring stations at Montague, MA; Scranton, PA; Indian River, DE; and Lewisburg, WV.

INTRODUCTION

The network of ozone monitoring stations was defined by EPA to be the four former EPRI-SURE monitoring stations located near Lewisburg, West Virginia; Indian River, Delaware; Scranton, Pennsylvania; and Montague, Massachusetts. Analyzers were supplied as Government Furnished Equipment. Specifically, Monitor Labs Model ML 8410E ozone analyzers and strip chart recorders were used in the program.

The monitoring program was conducted during the period of July 1 through September 12, 1980. Scheduled checks and calibrations were performed at times other than during the daily time period of 9:00 AM and 6:00 PM LDT, thus allowing a continuous record of daytime ozone concentrations.

CONFIGURATION

Four existing EPRI-SURE monitoring station locations were selected by the EPA for the conduct of this program. Station locations and their identifications are listed in Table 1.

When the stations were originally located in 1977, it was desirous that the locations meet EPRI-SURE program specified criteria. The external siting criteria is presented in Table 2. It was impossible for all sites to comply exactly with all of the external criteria. Confirmation of or deviations to the external criteria follow:

- Montague - Met all external criteria except for the proximity of tall trees.
- Scranton - Met all external criteria except for its close proximity to a dirt road and corn field.
- Indian River - Met all external criteria and the Prevention of Significant Deterioration (PSD) Guideline siting criteria.
- Lewisburg - Met all external criteria and the PSD Guideline siting criteria.

Environmentally controlled shelters housed the monitoring equipment. Each shelter was equipped with a Monitor Labs Model 8410E ozone analyzer, Esterline Angus MS 412C strip chart recorders, signal distribution system, and an air inlet manifold system. An equipment block diagram is presented in Figure 1.

Ambient air entered an inverted sampling probe located approximately one meter above the shelter roof (between 4 and 7 meters above grade elevation) and was moved into the sampling manifold at approximately 80 l/min using a continuously operating pump at the opposite end of the manifold. Thus, a constant supply of ambient air was available for sampling.

The Monitor Lab 8410E chemiluminescent O_3 analyzer operating on the 0.5 ppm scale was used to monitor O_3. This instrument was chosen because of its availability on loan from EPA. In this system the fixed air flow is mixed with a fixed ethylene flow. Any O_3

TABLE 1

MONITORING STATION LOCATIONS AND IDENTIFICATION

Site Name/No.	SURE ID No.	SAROAD ID No.			UTM Coordinates	UTM Zone
Montague - U1	1	22	1392	001	A05	00702880 E 4715550 N	18
Scranton - U2	2	39	8040	100	A05	00410640 E 4604800 N	18
Indian River - U3	3	08	0240	001	A05	00476160 E 4270480 N	18
Lewisburg - U4	9	50	0580	002	A05	00558720 E 4180800 N	17

TABLE 2

EXTERNAL SAMPLING LOCATION CRITERIA FOR SITES

EPRI-SURE PROGRAM

These criteria involve local environment requirements of the sampling sites.

-- station location generally to the west of significant point sources or urban areas. This is upwind under prevailing wind conditions;

-- in the case of river-valley terrain, station location above and away from valley flow regimes;

-- minimum flow interference by tall trees and obstacles. A horizontal clearance of ten times the obstacle height is preferred when the available alternatives permit this. However, an angular clearance of 30° or less from the horizontal was acceptable;

-- avoidance of dirt roads and plowed fields in the vicinity of the station. A minimum acceptable distance of 30 meters was sought, but notable exceptions could not be obviated when placing stations into rural areas; and

-- a distance of 16 km from any significant sources of sulfur such as polluted waterways and ponds, and waste-water treatment ponds.

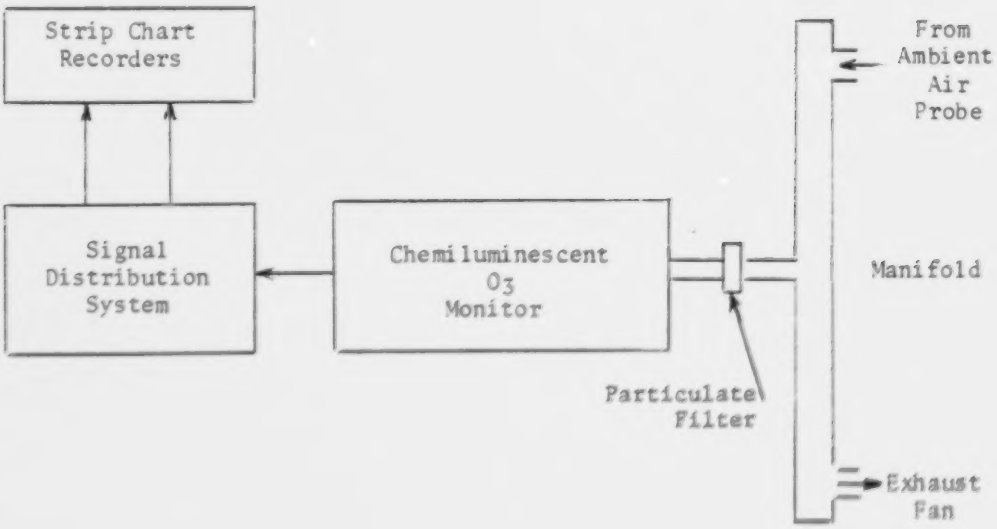


Figure 1. Sample and Data Flow for Continuous Monitoring

present reacts with the ethylene to produce a blue light, the intensity of which is proportional to the amount of O_3 present (measured with a photomultiplier). No significant interferences are present in normal, ambient air. The minimum detectable concentration of this instrument is 2 ppb according to the manufacturer, and this was attained under field conditions.

The complementary component to the continuous gas measurement process was the in-station test atmosphere generation system. This system produced standardized concentrations of O_3 against which to compare instrument responses; it also provided zero air against which instrument baselines were established.

Figure 2 shows the test atmosphere generation system in block diagram form. The principle of this system is to dilute a standard gas concentration with known volumes of air from which that gas has been scrubbed. This dilution process allows a number of standard concentrations to be generated so that instrument response in a number of concentration ranges could be tested.

Zero air was produced by feeding ambient air with an oilless compressor through a water trap and heatless dryer which consisted of two tightly-packed columns each containing molecular sieve and activated charcoal. These columns were switched with a control valve every 30 seconds to allow recovery and to prevent saturation of the column. Nearly all of the NO_2, and O_3 were scrubbed by the charcoal. Following the dryer, O_3 was introduced into the airstream to convert any remaining NO to NO_2 which was subsequently scrubbed by the next activated charcoal column along with the excess O_3. A filter following the scrubber removed any particulate matter entrained in the airstream.

The zero airstream was divided into three lines to serve as zero or dilution air. The dilution air flow was varied manually with a Brooks mass flow controller. Changes is this flow rate over its 2 to 15 l/min range allowed different gas concentrations to be generated. For this program, the uses for the zero air supply were as follows:

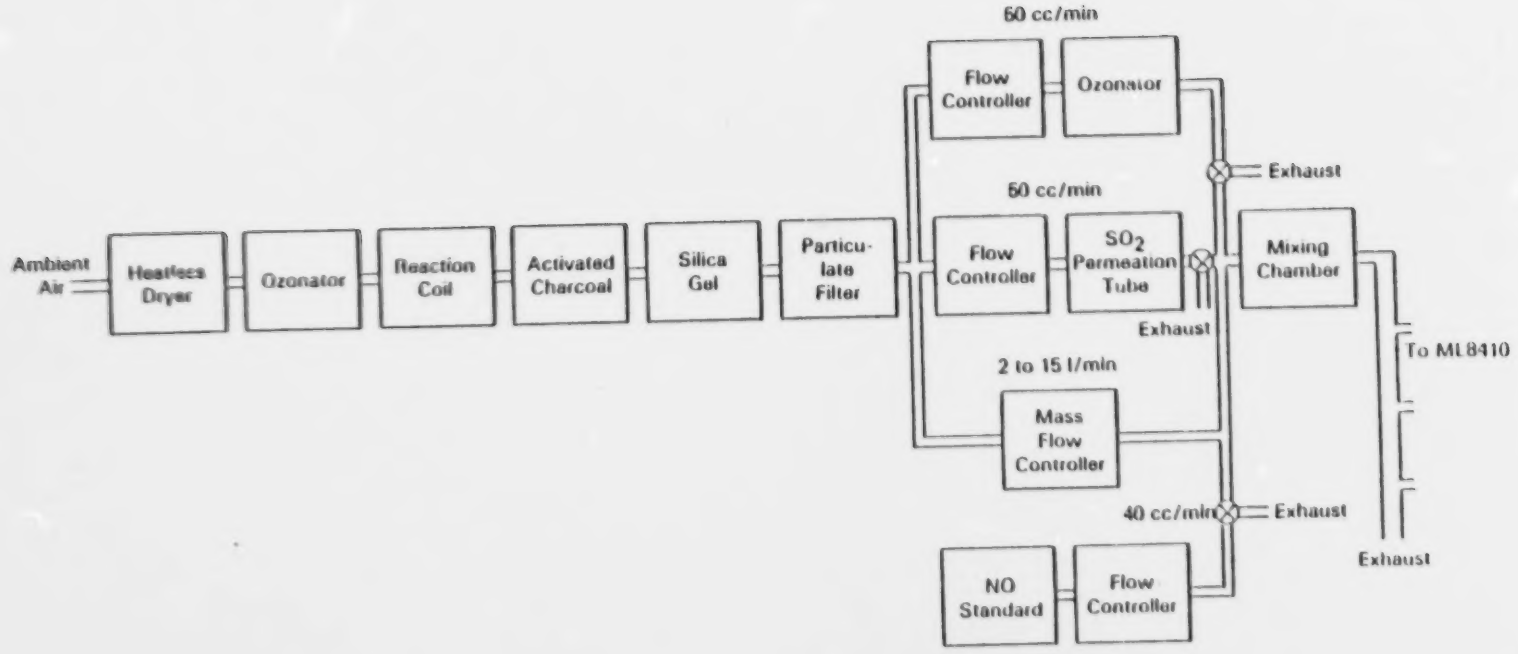


Figure 2. The System for Generating Test Atmospheres was used for Continual Tracking of Gas Monitoring Performance

- To supply the ozonator, 50 cc/min of the zero air was passed over the ultraviolet lamp. The amount of O_3 produced was controlled by positioning an adjustable cylindrical shield at several fixed lengths of lamp exposure to the passing air, or by adjusting the zero air flow rate.
- To dilute or to mix with established O_3 concentrations, a standard concentration of NO in N_2 from an NBS traceable standardized compressed cylinder. The NO was introduced into the system at 40 cc/min.

To produce standard concentrations, the O_3 sweep gases and the NO standard gas were routed from their normal paths through the exhaust manifold into the 150cc mixing chamber where they mixed with the zero dilution air under turbulent air conditions.

NO reacted with O_3 in this chamber to create NO_2. With NO in excess, the difference between the readings of the NO and NO_x channels of a calibrated instrument is equal to the O_3 concentration at the given rate of dilution for a setting of the ozonator UV lamp. Thus the NO source, together with the ozonator and NO source flow controllers, served as the in-station standard for O_3.

The gas mixture was presented to the monitors through a calibration manifold, distinct from the sampling manifold, which was accessible by the monitors when a set of solenoid valves switched the analyzer input to it.

The test-atmospheres could be presented to the monitoring instruments by either automatically or manually switching the valves. The automatic feature was used to check baseline and span values for each instrument daily. These checks took place in the early morning hours of each day.

The manual switching was used to check the automatic spans when it showed instrument performance tracking outside of specifications and on a weekly basis to present a range of test gas concentrations to the instruments.

All monitoring equipment was field calibrated prior to the start of data collection. The ML 8410E analyzer was calibrated with a Dasibi 1003 (Federal Register, Vol. 44, No. 28, Thursday, February 8, 1979) ultraviolet absorption ozone monitor with its internal calibration source. The Dasibi was also used as a transfer standard to verify the in-station calibration system. A multipoint calibration check of the ML 8410E was then performed using the in-station calibration system.

OPERATIONS

Station operations consisted of keeping all instruments functioning in such a way that precise and accurate measurements were made. ERT standard operating procedures were used to govern these activities. These procedures were supplemented by the manufacturers' manuals for each instrument and a series of Field Operations Bulletins which modified standard operating procedures in light of new experience. A listing of ERT proprietary standard operating procedures is presented in the Appendix.

A part-time technician was assigned to each monitoring station; these were veterans of the SURE. Each technician received initial and follow-up training in the standard procedures for each station and instrument. The objectives of the field technicians' routine visits were to:

- assess the status of all instruments;
- perform maintenance tasks as scheduled or required;
- document all significant information for later use in the analysis of data validity;
- report the station status and any problems to the network operations supervisor in Concord, MA; and
- deliver supplies to the station.

A routine visit checklist was filled out each time the sites were visited. Any negative response to an item was cause for corrective action. In most cases, this was a regular maintenance item, such as changing charcoal, which was handled by the field technician without further consultation. If the problem could not be corrected by the field technician, he would immediately call the network operations supervisor to advise him of it. The network operations supervisor would pinpoint the problem and devise the most efficient method of solving it. The options ranged from a temporary modification of the standard operating procedure to airshipping replacement equipment or sending a repair technician. All negative checklist items and the

corrective actions taken were noted in the station logbook. The logbook entry was made on a form in three copies one of which remained in the shelter for future reference; the other two were sent to Concord, MA on a weekly basis where they were reviewed by the network operations supervisor and the data validation technicians. This review resulted in further operations follow-up and was used for evaluating the data. Since the logbook and checklist entries were meant to be of use in the data validation process, the field technicians were instructed to provide as much useful information as possible which might explain anomalies in the data. The logbook entries also included:

- changes and calibrations of all equipment and serial numbers of each piece of equipment;
- a description of abnormal conditions in the vicinity of the site such as prevailing weather, or construction which might affect or bias the data;
- a classification of data as valid, invalid or suspect based on an evaluation of the monitoring instrument status;
- activities related to data collection such as the performance of routine and weekly checks, mailing checklists, logs and data.

Once per week, the routine visit was extended to perform a more lengthy evaluation of station performance. The key element of this check was in-station tracking of all measured quantities. This involved generating test atmospheres at two concentrations daily (zero and one concentration level), and at several concentrations weekly (zero and four concentration levels).

The daily checks were diagnostic; if the instrument response to the test atmosphere differed from the previous days response by more than $\pm$10%, the span was re-checked and if still out of tolerance, a full-scale instrument checkout was initiated.

Additional calibrations were made following repairs or replacements of components which failed. The performance of each of the in-station calibration devices was traceable to a primary standard.

Maintenance items such as changing exhaust filters, etc., were also attended to on a weekly basis. After these checks, the strip charts for the week were cut and mailed to the network operations supervisor in Concord, MA together with the routine visit checklists, weekly visit checklists, logbook entries and multipoint tracking results.

Aside from numerous power outages during the program, a few equipment problems caused losses of data. The following is a data capture (%) summary for the contract period.

Site	July	August	September
Montague - U1	98.52	98.92	99.31
Scranton - U2	97.31	95.70	98.26
Indian River - U3	81.59	98.66	98.61
Lewisburg - U4	98.66	99.33	98.26

Copies of the data reports are enclosed in the Appendix. A magnetic tape of all valid data was submitted to the EPA project officer as a part of this report.

Also enclosed in the appendix are summaries of the daily automatic span delta percents, and summaries of the multipoint calibration check delta percents for each station. The multipoint summary also presents the results of the reference Dasibi checks and the RTI performed audits.

Noted equipment problems during the program were as follows:

Montague - U1

Balston auto drain broke on 7/23 causing air leak. Suspect water leak caused erroneous span value on 7/30. Power failure interrupted span check on 8/11.

Scranton - U2

Multiple power failures disrupted the timer, resulting in missed span checks.

Indian River - U3

The ML8410E was down on 7/1. A broken wire on the fuse holder was replaced on 7/2. A power failure on 7/17 caused the ML 8410E to go full-scale. The chopper motor belt was replaced on 7/21, restoring the unit to service. On 8/20, the shelter air conditioner failed; the unit was repaired on 8/29. During a part of this period, the in-station calibration system was shut down due to the air conditioner problems. On 9/12 the primary chart recorder jammed. Data was recovered from the backup recorder.

Lewisburg - U4

Failure of the zero air system on 7/10 and the NO dilution air system on 7/22 resulted in losses of daily span values. Three span values were lost in August due to electrical storms and power failures.

On 9/3, the mass flow meter failed causing full-scale span checks from 9/3 to 9/5. A needle valve was installed in the dilution air line, restoring the calibration system to partial service.

DATA VALIDATION

The hourly averages determined from the continuous gaseous measurements at the sites were subjected routinely to two levels of validation. These levels have been defined as follows:

- Level I - Data which have been compared with station records but have been only partially edited; this level of data was used to support initial analyses and interpretations.
- Level II - Data which have been validated through instrument performance checks, calibration, digitization and machine reading.

The process for obtaining Level I validation is illustrated in Figure 3. The flow of data began with the instrumentation at each station providing the station technician with various information about instrument status, strip chart traces, zero and span values, and analyzer responses to various tests (multipoint tracking). With this information, the station technician classified data for specified periods into three classes.

- INVALID over periods when the monitor was not operating at all.
- SUSPECT when the analyzer was operating, but zero/span and multipoint tracking checks were out of specification, or when some monitor or system failure which did not stop data acquisition cast doubt on the data quality.
- VALID when all instruments were functioning properly, and zero/span and multipoint tracking criteria were met.

These designations were recorded in the logbook, and INVALID and SUSPECT periods were communicated to the network supervisor for immediate corrective action. The network supervisor also recorded high and low percent deviations of weekly multipoint tracking to observe trends which might indicate preventive maintenance. The strip

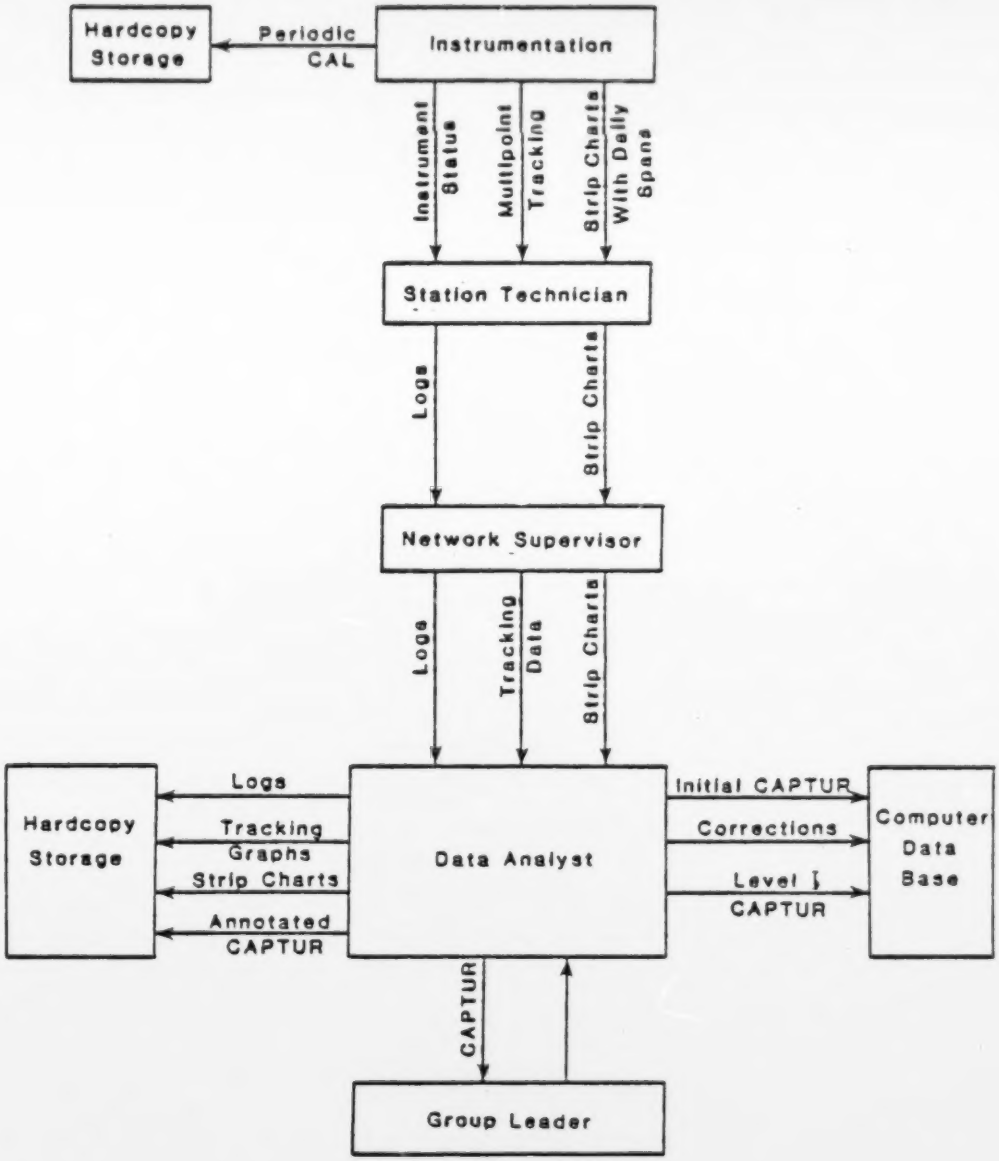


Figure 3. Level I Data Validation Flow for Measurements at Sites.

charts, logs and tracking data were then transferred to the data analyst who verified the field technicians' INVALID designations and confirmed that all such data over the specified period was actually deleted from the data base.

Strip chart traces were machine digitized. Periods of VALID data designed by the technician were checked to assure that the data had been entered into the data base.

SUSPECT data were underlined on the monthly data summaries (CAPTUR) for each site and parameter. The reasons for the SUSPECT designation were transferred from the station logsheets onto the CAPTUR together with daily span and weekly multipoint performance test data.

During this process, the designations of the station technician were double-checked to assure that all VALID and INVALID data had been properly classified. A group leader supervising a team of data analysts reviewed all monthly data summaries to assure that the above procedures had been carried out and returned them to the data analyst, who entered the completed data set into the computerized data base and archived the annotated CAPTUR. At this point, the data for the particular parameter, site and month under consideration was designated as being at Level I validation.

To achieve Level II validation, data from the station calibrations, daily and weekly performance tests, and performance evaluations were reviewed together with the tracking graphs, and, if necessary, the logs and strip charts. This part of the process is illustrated schematically in Figure 4. All decisions concerning Level II data validation were documented by the data validation coordinator, approved by the Technical Director, and implemented by the data analyst. Typical actions required in the course of this process included:

- examination of the tracking graphs. These were plots of the changes in percent deviation from designated values of the lowest and highest test atmosphere concentrations observed weekly;

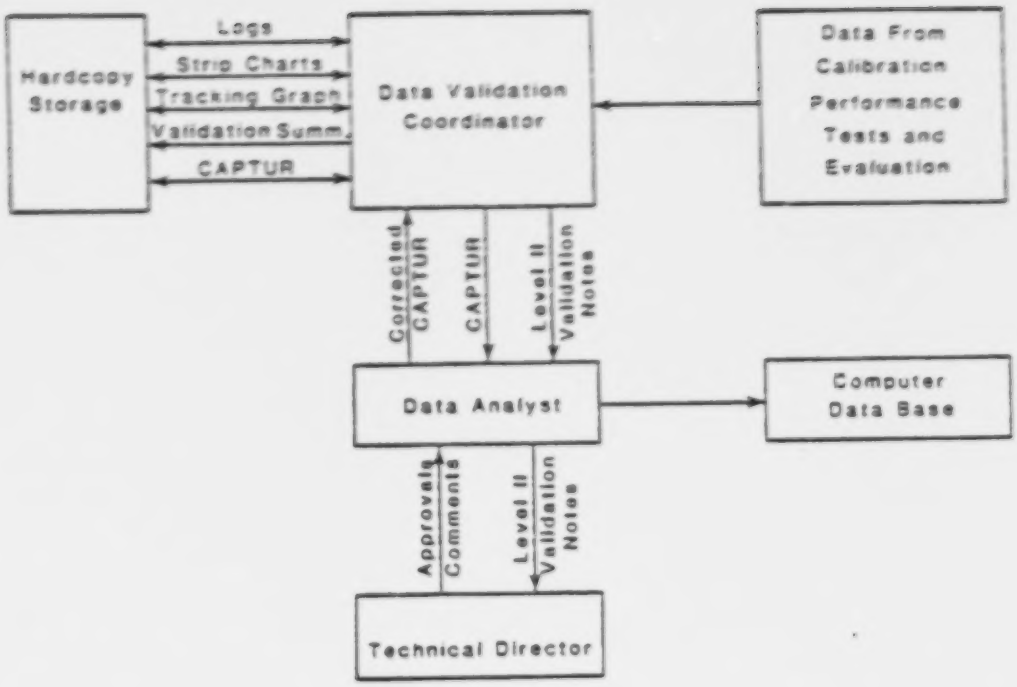


Figure 4. Level II Data Validation Flow for Measurements at the Sites.

- assignment of uncertainties to periods of erractic analyzer responses; and
- reclassification of SUSPECT into VALID or INVALID data.

During periods in which deviations of the O_3 analyzer responses were less than 25%, no changes were made in VALID classification or in the data. When the responses to the test atmospheres exceeded these deviations, three possibilities were considered:

- the test atmosphere was generated within tolerances and the analyzer response had drifted;
- the test atmosphere composition had changed, and the air analyzer was operating within tolerance; and
- both the test atmosphere concentrations and the analyzer performance had changed.

To determine which possibility applied, an evaluation was done of the station operating logs in which failures of specific components and the repair or replacement were recorded, and of the performance test and recalibration data provided by the visits to each station with the reference Dasibi.

If the Dasibi performance test showed the first possibility, that in-station test atmosphere was in tolerance, but the analyzer response was not, then the analyzer was recalibrated.

When malfunction of the test atmosphere generation was indicated, and the analyzer response remained correct, the SUSPECT data was reclassified as VALID. Tracking drifts caused by the test atmosphere generator were primarily due to changes in the gas concentrations introduced to the dilution air system, rather than due to inaccurate dilution air flowrates.

Verification of this with the Dasibi performance test allowed the standard concentrations to be redesignated and their reliability preserved by the quality control test function.

When the Dasibi performance tests showed both the analyzer and the in-station test atmosphere standard to be outside of specification, a data qualification with a higher uncertainty would have been required. This condition did not occur.

Level II of these continuous analyzer data validation activities included some redundancy of the procedures carried out at the previous level. This served incidentally as a continual verification of the data validation procedures.

APPENDIX A

U.S. EPA

OZONE (PPM) DATA FOR JULY 1980

DAY	HOURS (LST) 00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG
1	.0	.0	.0	.0	.0	.0	.0	.009	.028	.039	.045	.044	.046	.051	.058	.057	.058	.059	.057	.045	.059	.059	.060	.055	.035
2	.055	.053	.050	.050	.052	.049	.046	.039	.041	.042	.043	.040	.053	.059	.072	.068	.065	.063	.057	.037	.017	.016	.006	.001	.045
3	.1	.1	.0	.004	.005	.006	.015	.023	.026	.033	.049	.061	.068	.070	.077	.068	.068	.096	.093	.075	.052	.037	.032	.016	.042
4	.005	.0	.0	.0	.001	.0	.023	.050	.046	.047	.048	.048	.048	.049	.054	.055	.047	.045	.034	.019	.006	.002	.0	.0	.026
5	.001	.0	.002	.0	.0	.0	.010	.031	.045	.056	.071	.087	.076	.087	.090	.104	.104	.089	.091	.096	.063	.064	.056	.039	.055
6	.032	.029	.025	.020	.019	.029	.026	.025	.032	.034	.032	.028	.026	.023	.028	.037	.037	.034	.031	.030	.025	.018	.015	.008	.027
7	.005	.004	.003	.0	.0	.0	.006	.022	.022	.028	.031	.033	.034	.034	.037	.038	.039	.042	.039	.022	.014	.014	.017	.011	.021
8	.007	.0	.0	.0	.0	.0	.001	.007	.016	.013	.023	.027	.043	.042	.030	.999	.999	.034	.029	.014	.005	.0	.0	.0	.013
9	.0	.0	.0	.0	.0	.0	.0	.004	.019	.037	.043	.042	.043	.039	.036	.040	.041	.031	.013	.006	.003	.001	.0	.0	.017
10	.001	.0	.0	.0	.0	.0	.006	.019	.035	.040	.042	.042	.048	.055	.059	.063	.073	.083	.999	.035	.019	.040	.057	.057	.032
11	.051	.041	.041	.040	.036	.036	.040	.046	.053	.060	.068	.075	.071	.079	.083	.056	.044	.028	.042	.053	.046	.046	.029	.021	.049
12	.016	.015	.009	.004	.013	.015	.020	.023	.024	.025	.026	.027	.029	.029	.026	.027	.028	.028	.026	.016	.010	.010	.007	.005	.016
13	.0	.0	.0	.0	.0	.0	.007	.020	.026	.027	.028	.029	.030	.028	.031	.033	.032	.027	.016	.008	.006	.003	.001	.0	.015
14	.0	.0	.0	.0	.0	.0	.002	.015	.025	.032	.035	.036	.034	.035	.036	.038	.042	.044	.027	.017	.015	.007	.002	.003	.017
15	.046	.017	.036	.036	.026	.021	.033	.044	.061	.072	.085	.087	.084	.091	.090	.078	.077	.999	.110	.091	.075	.056	.047	.042	.051
16	.041	.039	.035	.031	.031	.026	.029	.032	.048	.069	.082	.085	.074	.070	.077	.078	.076	.072	.043	.038	.047	.038	.035	.029	.052
17	.020	.019	.015	.005	.004	.001	.012	.036	.037	.035	.042	.053	.056	.060	.064	.056	.054	.999	.999	.999	.054	.032	.029	.022	.032
18	.006	.009	.008	.002	.0	.001	.016	.023	.025	.027	.026	.027	.021	.023	.030	.026	.025	.025	.024	.013	.005	.0	.0	.0	.014
19	.0	.0	.0	.0	.0	.0	.0	.006	.026	.040	.049	.062	.062	.079	.096	.090	.084	.071	.068	.064	.059	.059	.050	.055	.043
20	.048	.060	.055	.045	.039	.033	.035	.037	.043	.063	.071	.090	.091	.085	.081	.060	.063	.057	.054	.043	.037	.025	.016	.016	.052
21	.007	.001	.001	.002	.0	.0	.001	.002	.013	.040	.056	.071	.073	.067	.070	.070	.066	.056	.055	.050	.051	.036	.035	.034	.036
22	.020	.013	.007	.007	.001	.013	.013	.022	.022	.028	.035	.051	.051	.050	.052	.053	.060	.056	.059	.050	.048	.039	.024	.029	.034
23	.022	.013	.010	.018	.022	.022	.020	.016	.019	.022	.032	.038	.041	.043	.047	.044	.039	.043	.999	.027	.017	.014	.015	.010	.026
24	.004	.0	.0	.0	.0	.001	.012	.021	.023	.027	.029	.026	.028	.028	.028	.032	.033	.032	.023	.019	.011	.003	.0	.0	.016
25	.0	.0	.0	.0	.0	.0	.004	.006	.023	.033	.036	.036	.035	.033	.039	.047	.057	.060	.046	.030	.017	.015	.010	.0	.022
26	.0	.0	.0	.0	.0	.0	.006	.019	.032	.050	.064	.068	.070	.070	.067	.064	.063	.051	.043	.025	.018	.014	.009	.008	.032
27	.003	.0	.001	.0	.0	.0	.008	.031	.048	.060	.074	.088	.095	.095	.094	.101	.111	.106	.057	.076	.064	.059	.051	.056	.054
28	.007	.021	.028	.019	.009	.015	.020	.035	.036	.045	.050	.056	.058	.057	.060	.065	.063	.053	.058	.056	.054	.042	.029	.021	.042
29	.010	.003	.007	.002	.002	.0	.006	.015	.018	.016	.015	.018	.019	.019	.015	.014	.015	.015	.012	.014	.012	.009	.011	.011	.012
30	.006	.003	.002	.0	.0	.002	.002	.007	.021	.034	.044	.053	.051	.059	.059	.051	.055	.999	.999	.021	.014	.003	.002	.002	.022
31	.0	.0	.001	.0	.0	.0	.0	.013	.033	.037	.037	.036	.039	.041	.047	.050	.053	.051	.035	.010	.006	.003	.002	.002	.021
AVG	.013	.011	.011	.009	.009	.009	.014	.023	.031	.039	.046	.050	.052	.053	.056	.056	.056	.052	.047	.037	.030	.025	.021	.017	.032
DATA	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	28	27	30	30	31	31	31	733

TOTAL HOURS = 744 NUMBER OF GOOD HOURS = 733 NUMBER OF MISSING HOURS = 11 DATA CAPTURE = 98.52 (PERCENT)
ABOVE THREE ROWS ARE TOTAL HOURLY AVERAGES, TOTAL OBSERVATIONS/HOUR AND DATA CAPTURE STATISTICS
TOTAL AVERAGE = 0.032 MAXIMUM HOURLY VALUE = 0.111 STANDARD DEVIATION = 0.0259

VALIDATED
DATE 9-15-80
VALIDATED BY SA
ANALYST
DATE 9/15/80
Environmental Research & Technology

U.S. EPA

SCRANTON — OZONE — (PPM) — DATA FOR JULY 1980

PERIOD 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23																								
HOURS (LST) 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24																								
DAY																								AVG
1	.030	.032	.032	.029	.023	.013	.019	.021	.027	.034	.035	.040	.041	.043	.044	.040	.045	.050	.042	.048	.052	.049	.040	.028	.036
2	.012	.019	.016	.019	.009	.021	.027	.028	.030	.034	.031	.035	.037	.045	.056	.056	.049	.045	.035	.039	.033	.023	.018	.012	.030
3	.011	.014	.019	.019	.012	.023	.025	.031	.030	.029	.029	.036	.039	.036	.032	.032	.030	.026	.025	.023	.022	.013	.013	.011	.024
4	.012	.016	.019	.014	.015	.013	.015	.020	.038	.055	.059	.059	.059	.057	.056	.057	.057	.056	.062	.051	.043	.044	.029	.024	.039
5	.016	.016	.011	.008	.007	.007	.008	.009	.021	.041	.073	.074	.071	.066	.066	.070	.062	.047	.050	.050	.043	.039	.041	.041	.039
6	.037	.035	.041	.036	.032	.033	.033	.031	.032	.034	.035	.033	.030	.031	.037	.042	.041	.045	.046	.043	.041	.041	.035	.031	.036
7	.025	.023	.018	.014	.011	.009	.004	.012	.027	.033	.034	.035	.035	.037	.034	.034	.034	.999	.999	.022	.021	.026	.023	.017	.024
8	.013	.011	.009	.008	.014	.018	.026	.025	.023	.029	.038	.045	.044	.042	.044	.049	.033	.037	.045	.048	.055	.053	.056	.054	.034
9	.043	.040	.038	.039	.027	.018	.014	.017	.031	.038	.039	.041	.044	.046	.047	.048	.049	.043	.043	.039	.032	.023	.024	.025	.035
10	.020	.021	.013	.013	.012	.015	.016	.018	.028	.039	.052	.062	.065	.067	.067	.062	.055	.058	.058	.050	.046	.040	.043	.041	.040
11	.029	.029	.022	.016	.013	.013	.018	.022	.013	.015	.018	.035	.044	.052	.056	.059	.060	.052	.045	.042	.043	.038	.036	.035	.034
12	.031	.031	.031	.027	.027	.025	.024	.022	.024	.028	.035	.040	.043	.042	.042	.042	.044	.047	.044	.038	.038	.038	.030	.031	.034
13	.036	.023	.019	.009	.012	.012	.016	.026	.034	.037	.036	.039	.045	.046	.046	.044	.043	.041	.044	.999	.999	.024	.029	.029	.031
14	.021	.020	.016	.010	.005	.003	.011	.017	.022	.015	.034	.048	.049	.048	.053	.054	.050	.046	.046	.047	.051	.060	.051	.031	.034
15	.025	.018	.026	.021	.018	.014	.008	.016	.033	.043	.054	.053	.058	.071	.076	.076	.060	.068	.067	.069	.086	.083	.068	.069	.052
16	.034	.052	.045	.036	.025	.022	.030	.034	.030	.050	.049	.051	.055	.056	.055	.050	.046	.042	.039	.035	.034	.039	.042	.032	.042
17	.021	.017	.024	.037	.019	.016	.036	.033	.999	.033	.044	.048	.047	.044	.045	.048	.040	.039	.040	.038	.042	.046	.047	.039	.037
18	.036	.032	.023	.020	.024	.026	.022	.030	.032	.036	.999	.039	.042	.049	.045	.042	.045	.045	.045	.043	.036	.020	.030	.017	.034
19	.014	.013	.009	.002	.001	.003	.008	.001	.005	.013	.031	.054	.055	.050	.057	.058	.059	.066	.078	.082	.081	.077	.062	.062	.041
20	.070	.063	.051	.045	.030	.025	.012	.018	.021	.043	.050	.050	.057	.065	.076	.090	.106	.110	.097	.097	.107	.098	.094	.088	.065
21	.040	.029	.035	.021	.049	.027	.012	.020	.047	.050	.052	.054	.056	.059	.057	.060	.066	.073	.999	.999	.999	.999	.999	.999	.051
22	.999	.999	.999	.999	.010	.011	.015	.011	.012	.015	.018	.029	.035	.040	.045	.045	.050	.035	.999	.999	.999	.030	.027	.020	.999
23	.018	.015	.021	.025	.022	.021	.021	.023	.032	.037	.039	.038	.040	.044	.045	.043	.034	.032	.029	.030	.024	.017	.021	.023	.029
24	.019	.015	.013	.011	.009	.013	.020	.021	.026	.030	.031	.035	.044	.044	.043	.042	.046	.046	.048	.040	.034	.033	.031	.025	.030
25	.040	.013	.011	.012	.010	.005	.008	.012	.006	.020	.041	.053	.061	.060	.063	.064	.071	.077	.077	.068	.065	.067	.060	.051	.041
26	.044	.032	.025	.020	.013	.006	.003	.001	.006	.033	.069	.068	.690	.086	.078	.079	.062	.087	.101	.107	.100	.085	.076	.060	.057
27	.052	.032	.026	.020	.008	.007	.008	.016	.020	.042	.062	.069	.078	.082	.080	.078	.087	.081	.083	.066	.086	.067	.056	.047	.053
28	.047	.038	.045	.043	.030	.021	.033	.056	.040	.042	.040	.043	.060	.062	.061	.057	.054	.052	.041	.999	.032	.038	.036	.031	.043
29	.029	.026	.021	.017	.009	.008	.009	.016	.013	.017	.015	.025	.035	.029	.038	.041	.041	.039	.030	.034	.038	.026	.025	.021	.025
30	.030	.021	.040	.047	.038	.034	.024	.025	.026	.030	.046	.048	.049	.053	.051	.060	.051	.044	.044	.049	.035	.042	.027	.032	.040
31	.026	.017	.010	.016	.010	.007	.012	.012	.018	.015	.032	.047	.049	.048	.046	.040	.052	.048	.056	.051	.038	.029	.020	.010	.029
AVG	.031	.027	.025	.022	.018	.016	.017	.020	.025	.033	.041	.047	.050	.052	.053	.054	.054	.053	.053	.051	.049	.044	.040	.035	.038
DAYS	30	30	30	30	31	31	31	31	30	31	30	31	31	31	31	31	31	30	28	27	28	30	30	30	724

TOTAL HOURS = 744 NUMBER OF GOOD HOURS = 724 NUMBER OF MISSING HOURS = 20 DATA CAPTURE = 97.31 (PERCENT)
ABOVE THREE ROWS ARE TOTAL HOURLY AVERAGES, TOTAL OBSERVATIONS/HOUR AND DATA CAPTURE STATISTICS
TOTAL AVERAGE = 0.038 MAXIMUM HOURLY VALUE = 0.110 STANDARD DEVIATION = 0.0204

VALIDATED
ERT
DATE 9-12-80
VALIDATED BY SJ
ANALYST AC SJ
DATE 9/15/80
Environmental Research & Technology

U.S. EPA

INDIAN RIVER OZONE (PPM) DATA FOR JULY 1980

HR-BEG	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
HR-END	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
DAY																									AVG
1	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
2	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.041	.050	.043	.037	.036	.035	.036	.037	.041	.999
3	.041	.043	.042	.036	.027	.025	.023	.027	.029	.034	.039	.048	.051	.050	.051	.044	.038	.041	.051	.047	.043	.041	.045	.059	.040
4	.038	.032	.026	.020	.014	.009	.010	.017	.027	.047	.057	.074	.089	.094	.108	.112	.110	.106	.101	.100	.081	.069	.061	.045	.060
5	.046	.039	.030	.015	.004	.005	.020	.045	.060	.079	.080	.063	.060	.049	.051	.050	.054	.056	.055	.044	.038	.036	.036	.031	.043
6	.029	.025	.024	.019	.019	.017	.019	.033	.047	.043	.047	.044	.048	.044	.049	.051	.050	.051	.048	.043	.034	.034	.032	.022	.036
7	.022	.024	.999	.999	.999	.999	.999	.999	.020	.030	.041	.044	.046	.042	.031	.029	.048	.049	.049	.045	.042	.035	.042	.042	.038
8	.037	.029	.031	.033	.028	.033	.039	.035	.032	.020	.018	.025	.036	.039	.043	.048	.049	.037	.026	.019	.016	.018	.016	.025	.030
9	.022	.020	.021	.016	.012	.012	.010	.012	.027	.040	.041	.057	.067	.079	.077	.078	.080	.073	.075	.067	.060	.052	.031	.044	.045
10	.054	.060	.056	.040	.025	.016	.023	.021	.021	.023	.027	.037	.046	.056	.063	.059	.055	.054	.049	.052	.043	.040	.037	.038	.041
11	.040	.034	.044	.035	.054	.053	.045	.049	.042	.049	.052	.073	.081	.069	.070	.070	.067	.071	.073	.105	.112	.092	.076	.072	.064
12	.060	.058	.056	.052	.043	.037	.037	.034	.041	.056	.056	.059	.067	.072	.071	.086	.087	.087	.086	.079	.064	.059	.044	.035	.059
13	.035	.042	.038	.031	.032	.029	.030	.034	.035	.040	.043	.042	.046	.063	.063	.067	.072	.080	.083	.072	.058	.045	.042	.038	.048
14	.032	.026	.023	.015	.010	.006	.999	.999	.028	.049	.071	.075	.074	.081	.084	.086	.086	.080	.074	.068	.063	.055	.048	.044	.054
15	.034	.039	.032	.022	.022	.020	.019	.027	.036	.047	.059	.071	.079	.079	.078	.078	.074	.075	.068	.058	.049	.041	.036	.036	.049
16	.036	.036	.036	.031	.026	.024	.022	.025	.033	.044	.056	.067	.072	.069	.080	.085	.080	.077	.999	.999	.042	.052	.036	.034	.048
17	.033	.034	.031	.027	.025	.030	.035	.033	.034	.039	.051	.060	.068	.065	.069	.081	.068	.075	.049	.999	.999	.999	.999	.999	.049
18	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
19	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
20	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
21	.999	.999	.999	.999	.999	.999	.999	.999	.999	.034	.042	.054	.056	.062	.064	.065	.065	.066	.058	.048	.036	.024	.041	.046	.999
22	.042	.041	.037	.037	.032	.024	.017	.013	.019	.029	.041	.045	.053	.048	.043	.057	.047	.037	.027	.016	.034	.030	.028	.024	.034
23	.018	.016	.014	.019	.019	.018	.019	.021	.021	.020	.027	.026	.023	.025	.026	.028	.030	.029	.021	.023	.023	.022	.016	.010	.021
24	.005	.006	.004	.005	.002	.005	.001	.003	.006	.010	.018	.033	.052	.054	.047	.050	.054	.047	.044	.038	.025	.028	.008	.001	.023
25	.011	.013	.012	.011	.016	.007	.003	.002	.024	.046	.058	.058	.057	.062	.071	.079	.078	.071	.076	.077	.061	.056	.070	.069	.045
26	.067	.068	.060	.057	.052	.038	.025	.026	.035	.045	.056	.066	.068	.070	.070	.070	.067	.065	.067	.065	.061	.056	.057	.059	.057
27	.057	.034	.020	.006	.020	.017	.005	.020	.046	.053	.053	.052	.054	.053	.051	.047	.041	.042	.042	.044	.039	.036	.032	.027	.037
28	.027	.030	.029	.030	.031	.033	.034	.999	.999	.040	.037	.034	.037	.035	.036	.034	.030	.029	.029	.027	.025	.027	.029	.028	.031
29	.027	.025	.027	.020	.021	.019	.021	.019	.020	.017	.016	.027	.031	.034	.034	.041	.053	.070	.072	.065	.049	.052	.048	.044	.035
30	.025	.020	.023	.027	.023	.019	.017	.018	.030	.041	.054	.064	.062	.065	.070	.074	.074	.100	.095	.075	.056	.043	.043	.049	.049
31	.037	.041	.042	.036	.029	.028	.015	.014	.033	.039	.039	.068	.055	.052	.071	.084	.086	.089	.089	.081	.068	.063	.051	.044	.052
AVG	.035	.033	.032	.027	.024	.022	.021	.024	.031	.039	.045	.053	.057	.058	.060	.063	.063	.063	.059	.056	.048	.044	.040	.038	.044
DATA	25	25	24	24	24	24	23	22	24	26	26	26	26	26	26	27	27	27	26	25	26	26	26	26	607

TOTAL HOURS = 744 NUMBER OF GOOD HOURS = 607 NUMBER OF MISSING HOURS = 137 DATA CAPTURE = 81.59 (PERCENT)
ABOVE THREE ROWS ARE TOTAL HOURLY AVERAGES, TOTAL OBSERVATIONS/HOUR AND DATA CAPTURE STATISTICS
TOTAL AVERAGE = 0.044 MAXIMUM HOURLY VALUE = 0.112 STANDARD DEVIATION = 0.0216

VALIDATED ERT DATE 9-15-80 VALIDATED BY ANALYST DATE 9/15/80 Environmental Research & Technology

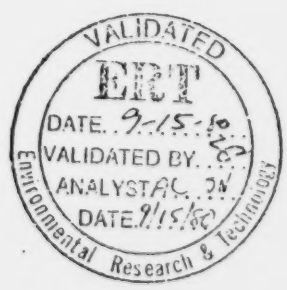
U.S. EPA

LEWISBURG OZONE (PPM) DATA FOR JULY 1980

HOURS (LST)

HR-BEG	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
HR-END	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
DAY																									AVG
1	.020	.019	.015	.016	.011	.010	.011	.019	.031	.040	.043	.045	.045	.045	.045	.046	.051	.059	.055	.044	.051	.039	.036	.032	.034
2	.030	.023	.021	.017	.014	.013	.015	.027	.043	.059	.062	.065	.064	.070	.072	.072	.068	.073	.066	.058	.050	.038	.040	.046	.046
3	.039	.054	.052	.047	.043	.040	.041	.039	.037	.041	.045	.039	.040	.042	.042	.040	.041	.041	.040	.040	.038	.038	.034	.028	.041
4	.025	.024	.027	.028	.027	.023	.023	.032	.038	.043	.045	.047	.046	.043	.043	.039	.042	.043	.042	.036	.026	.024	.019	.022	.034
5	.021	.021	.020	.023	.029	.033	.037	.038	.028	.032	.045	.054	.056	.999	.040	.038	.042	.047	.050	.053	.054	.052	.050	.043	.039
6	.041	.050	.050	.048	.048	.049	.047	.048	.045	.046	.046	.045	.044	.047	.047	.049	.048	.050	.048	.042	.036	.032	.028	.028	.044
7	.022	.018	.016	.017	.018	.019	.020	.026	.034	.039	.048	.053	.051	.053	.057	.063	.063	.056	.050	.044	.036	.037	.028	.027	.037
8	.024	.023	.023	.021	.019	.021	.016	.023	.037	.049	.056	.057	.058	.060	.060	.059	.058	.049	.044	.042	.042	.999	.034	.034	.040
9	.030	.032	.036	.039	.043	.031	.031	.038	.041	.039	.038	.043	.055	.058	.053	.053	.056	.050	.047	.047	.040	.035	.036	.033	.042
10	.035	.035	.038	.039	.039	.040	.040	.040	.041	.041	.047	.050	.050	.053	.047	.046	.047	.048	.046	.046	.047	.046	.037	.035	.043
11	.036	.029	.018	.021	.014	.015	.023	.999	.040	.043	.050	.054	.054	.052	.052	.052	.055	.058	.064	.072	.066	.065	.059	.050	.045
12	.049	.045	.039	.031	.027	.027	.026	.031	.056	.063	.075	.080	.079	.074	.065	.060	.062	.059	.056	.048	.039	.037	.036	.038	.050
13	.042	.043	.039	.029	.027	.027	.031	.035	.039	.036	.037	.041	.044	.045	.050	.048	.047	.041	.040	.041	.035	.031	.027	.026	.038
14	.023	.022	.018	.010	.013	.016	.018	.025	.030	.047	.050	.051	.051	.049	.050	.047	.051	.055	.048	.037	.029	.030	.026	.024	.034
15	.019	.021	.016	.010	.012	.013	.016	.019	.021	.049	.054	.056	.052	.060	.051	.052	.054	.056	.054	.999	.046	.038	.031	.023	.036
16	.020	.016	.014	.012	.011	.009	.013	.022	.031	.050	.055	.069	.066	.060	.063	.061	.064	.066	.059	.044	.041	.036	.025	.024	.039
17	.025	.022	.014	.014	.012	.008	.011	.025	.046	.057	.065	.069	.075	.070	.060	.053	.055	.078	.077	.075	.060	.038	.034	.031	.045
18	.029	.025	.022	.017	.014	.017	.022	.021	.028	.044	.055	.058	.061	.063	.060	.054	.050	.052	.047	.036	.029	.028	.019	.029	.037
19	.026	.022	.017	.014	.016	.014	.019	.015	.021	.047	.058	.062	.064	.063	.063	.061	.065	.063	.057	.039	.033	.031	.027	.023	.033
20	.021	.015	.019	.015	.013	.016	.015	.020	.039	.046	.047	.050	.054	.053	.054	.056	.056	.057	.044	.032	.023	.021	.019	.018	.033
21	.016	.011	.011	.013	.008	.008	.010	.018	.031	.037	.038	.036	.037	.037	.038	.041	.040	.034	.028	.027	.021	.017	.014	.016	.024
22	.014	.010	.007	.007	.008	.005	.011	.015	.024	.033	.043	.048	.048	.037	.035	.032	.032	.037	.999	.032	.027	.027	.032	.027	.026
23	.026	.028	.024	.025	.025	.023	.024	.022	.024	.028	.039	.047	.052	.049	.056	.063	.060	.999	.999	.999	.999	.042	.043	.036	.037
24	.029	.025	.024	.024	.020	.021	.028	.026	.035	.045	.049	.066	.064	.065	.067	.067	.068	.063	.054	.048	.045	.035	.027	.026	.043
25	.023	.016	.022	.023	.023	.020	.025	.026	.028	.042	.065	.076	.080	.075	.069	.073	.079	.077	.066	.050	.048	.037	.034	.029	.046
26	.029	.030	.029	.034	.031	.028	.035	.048	.048	.062	.073	.077	.078	.078	.073	.074	.077	.066	.060	.060	.059	.055	.060	.067	.055
27	.045	.045	.043	.038	.037	.033	.034	.039	.051	.064	.069	.070	.077	.076	.080	.073	.065	.064	.061	.055	.048	.049	.047	.037	.055
28	.035	.032	.035	.028	.026	.025	.016	.016	.026	.027	.030	.040	.040	.039	.037	.038	.034	.028	.029	.036	.050	.062	.042	.035	.034
29	.031	.029	.022	.022	.022	.016	.021	.033	.051	.051	.057	.060	.062	.074	.080	.074	.082	.085	.085	.077	.999	.050	.045	.037	.050
30	.030	.032	.029	.022	.019	.022	.033	.032	.033	.040	.055	.061	.060	.060	.064	.084	.090	.087	.078	.071	.058	.049	.039	.040	.049
31	.027	.025	.022	.021	.020	.017	.014	.015	.025	.056	.069	.069	.066	.068	.068	.064	.067	.067	.066	.060	.058	.045	.038	.030	.045
AVG	.029	.027	.025	.023	.022	.021	.023	.028	.036	.045	.052	.056	.057	.057	.056	.056	.057	.057	.054	.048	.043	.039	.034	.032	.041
DAYS	31	31	31	31	31	31	31	30	31	31	31	31	31	30	31	31	31	30	29	29	29	30	31	31	734

TOTAL HOURS = 744 NUMBER OF GOOD HOURS = 734 NUMBER OF MISSING HOURS = 10 DATA CAPTURE = 98.66 (PERCENT)
ABOVE THREE ROWS ARE TOTAL HOURLY AVERAGES, TOTAL OBSERVATIONS/HOUR AND DATA CAPTURE STATISTICS
TOTAL AVERAGE = 0.041 MAXIMUM HOURLY VALUE = 0.090 STANDARD DEVIATION = 0.0176

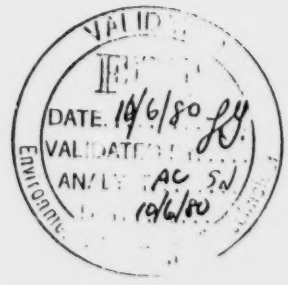


U.S. EPA

MONTAGUE OZONE (PPM) DATA FOR AUGUST 1980

	HOURS (LST)																							
HR-BEG	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
HR-END	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
DAY																									AVG
1	.001	.0	.0	.0	.0	.0	.0	.007	.013	.039	.073	.090	.101	.115	.113	.102	.100	.081	.060	.028	.015	.003	.002	.0	.039
2	.001	.004	.009	.018	.014	.013	.017	.023	.043	.053	.057	.062	.067	.068	.064	.061	.055	.048	.036	.029	.027	.032	.022	.016	.035
3	.014	.020	.023	.024	.027	.022	.018	.022	.023	.028	.039	.052	.050	.045	.046	.047	.047	.048	.033	.034	.016	.011	.009	.003	.029
4	.002	.0	.0	.0	.001	.005	.006	.014	.025	.042	.050	.049	.047	.051	.053	.057	.057	.053	.030	.017	.008	.005	.001	.002	.024
5	.002	.0	.0	.0	.0	.0	.006	.016	.029	.034	.041	.056	.078	.107	.114	.098	.101	.082	.070	.052	.026	.014	.009	.004	.039
6	.002	.0	.0	.0	.0	.0	.002	.012	.033	.047	.060	.061	.059	.067	.065	.047	.047	.033	.022	.010	.003	.007	.0	.001	.024
7	.0	.0	.0	.0	.0	.0	.0	.021	.040	.050	.050	.050	.051	.050	.049	.052	.061	.999	.032	.021	.015	.005	.002	.0	.024
8	.0	.0	.0	.0	.0	.0	.001	.011	.030	.059	.070	.065	.060	.063	.065	.065	.061	.055	.040	.029	.031	.040	.047	.048	.035
9	.047	.029	.025	.031	.033	.036	.035	.040	.043	.042	.040	.045	.046	.045	.042	.046	.038	.035	.030	.024	.018	.016	.009	.007	.033
10	.004	.012	.021	.015	.010	.010	.010	.013	.018	.025	.031	.033	.037	.035	.036	.034	.036	.031	.025	.016	.010	.014	.016	.018	.021
11	.019	.014	.014	.004	.012	.032	.015	.004	.007	.007	.009	.011	.012	.011	.009	.007	.010	.005	.007	.016	.021	.017	.009	.008	.012
12	.006	.003	.004	.007	.006	.004	.003	.005	.012	.014	.030	.046	.045	.043	.047	.050	.045	.050	.038	.023	.018	.007	.004	.0	.021
13	.0	.0	.0	.0	.0	.0	.003	.006	.021	.034	.043	.042	.038	.034	.036	.034	.031	.025	.008	.005	.003	.0	.0	.0	.015
14	.0	.0	.0	.0	.0	.0	.0	.002	.008	.018	.018	.024	.023	.031	.039	.037	.042	.999	.999	.028	.027	.011	.007	.003	.014
15	.001	.003	.003	.002	.0	.0	.0	.0	.005	.018	.033	.041	.046	.048	.045	.040	.039	.035	.031	.023	.017	.008	.006	.005	.019
16	.005	.004	.002	.0	.0	.0	.003	.013	.016	.014	.015	.013	.014	.020	.022	.022	.022	.019	.020	.018	.014	.010	.006	.002	.011
17	.003	.001	.002	.001	.0	.0	.0	.009	.018	.021	.027	.029	.030	.029	.029	.032	.034	.028	.017	.012	.005	.0	.0	.0	.014
18	.0	.0	.0	.0	.0	.0	.0	.004	.013	.021	.026	.038	.051	.054	.076	.085	.093	.081	.074	.061	.052	.040	.028	.029	.034
19	.028	.018	.015	.016	.013	.011	.008	.010	.010	.013	.015	.020	.024	.034	.040	.043	.042	.034	.023	.017	.015	.012	.015	.012	.020
20	.015	.015	.015	.016	.021	.023	.024	.026	.029	.030	.033	.035	.033	.031	.031	.030	.027	.025	.022	.023	.027	.027	.022	.021	.025
21	.019	.016	.015	.010	.007	.008	.013	.021	.025	.027	.026	.025	.029	.029	.029	.028	.029	.999	.999	.025	.024	.026	.020	.019	.021
22	.019	.018	.019	.020	.016	.018	.018	.016	.019	.021	.023	.031	.031	.032	.033	.031	.030	.030	.020	.009	.003	.001	.0	.0	.019
23	.0	.0	.0	.0	.001	.004	.007	.009	.018	.022	.029	.030	.032	.038	.035	.037	.039	.036	.020	.014	.007	.005	.001	.0	.016
24	.0	.0	.0	.0	.0	.0	.004	.015	.028	.040	.041	.040	.041	.041	.041	.042	.999	.037	.025	.020	.014	.004	.0	.0	.019
25	.0	.0	.0	.0	.002	.001	.007	.011	.020	.024	.030	.032	.031	.029	.030	.028	.028	.023	.015	.006	.001	.0	.0	.0	.013
26	.0	.0	.0	.0	.0	.0	.0	.005	.011	.023	.043	.057	.067	.069	.070	.066	.064	.056	.040	.033	.023	.013	.009	.008	.027
27	.003	.001	.0	.0	.0	.0	.003	.009	.005	.023	.034	.038	.053	.059	.069	.074	.076	.072	.049	.026	.023	.014	.006	.001	.027
28	.003	.010	.007	.002	.0	.0	.007	.030	.027	.019	.024	.027	.024	.021	.027	.025	.025	.999	.999	.008	.011	.007	.004	.002	.014
29	.0	.0	.0	.0	.0	.0	.0	.0	.001	.003	.005	.010	.009	.011	.012	.010	.006	.003	.0	.0	.0	.0	.0	.001	.003
30	.0	.0	.0	.0	.0	.0	.0	.004	.007	.013	.037	.052	.056	.055	.066	.077	.081	.080	.077	.070	.063	.057	.045	.031	.036
31	.021	.018	.017	.015	.010	.008	.005	.007	.015	.021	.036	.047	.041	.044	.051	.045	.039	.022	.009	.018	.040	.030	.021	.017	.025
AVG	.007	.006	.006	.006	.006	.006	.007	.012	.020	.027	.035	.040	.043	.045	.048	.047	.047	.042	.031	.023	.019	.014	.010	.008	.023
DAYS	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	27	28	31	31	31	31	31	736

TOTAL HOURS = 744 NUMBER OF GOOD HOURS = 736 NUMBER OF MISSING HOURS = 8 DATA CAPTURE = 98.92 (PERCENT)
ABOVE THREE ROWS ARE TOTAL HOURLY AVERAGES, TOTAL OBSERVATIONS/HOUR AND DATA CAPTURE STATISTICS
TOTAL AVERAGE = 0.023 MAXIMUM HOURLY VALUE = 0.115 STANDARD DEVIATION = 0.0222



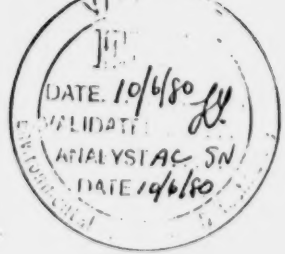
U.S. EPA

SCRANTON OZONE (PPM) DATA FOR AUGUST 1980

HOURS (LST)

HR-BEG	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
HR-END	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
DAY																									AVG
1	.009	.034	.028	.039	.051	.059	.051	.041	.050	.057	.057	.062	.070	.077	.077	.071	.067	.070	.063	.066	.064	.057	.058	.058	.056
2	.050	.046	.044	.036	.024	.011	.004	.017	.014	.051	.052	.056	.059	.060	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
3	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.033	.049	.056	.059	.053	.055	.048	.042	.043	.999
4	.035	.029	.024	.012	.009	.012	.999	.015	.033	.040	.049	.056	.060	.057	.054	.053	.056	.048	.044	.047	.034	.030	.024	.020	.037
5	.016	.010	.013	.005	.005	.005	.001	.003	.004	.020	.057	.067	.070	.070	.067	.067	.059	.052	.051	.049	.055	.053	.048	.055	.037
6	.054	.051	.046	.034	.026	.023	.018	.018	.034	.030	.030	.039	.042	.044	.051	.049	.048	.043	.049	.050	.040	.037	.038	.030	.038
7	.025	.022	.021	.017	.017	.006	.004	.004	.008	.025	.059	.067	.080	.083	.081	.068	.063	.073	.076	.074	.071	.067	.073	.077	.048
8	.073	.071	.066	.062	.054	.051	.048	.041	.040	.048	.054	.054	.057	.058	.065	.058	.062	.061	.059	.063	.067	.065	.059	.056	.058
9	.055	.057	.055	.051	.049	.049	.051	.046	.043	.046	.050	.052	.053	.054	.057	.059	.058	.059	.062	.061	.057	.047	.043	.036	.052
10	.032	.025	.025	.015	.012	.014	.013	.009	.008	.013	.027	.040	.046	.050	.056	.050	.058	.058	.049	.050	.045	.036	.025	.021	.032
11	.032	.030	.026	.019	.024	.022	.012	.015	.021	.031	.042	.046	.053	.062	.064	.064	.068	.999	.063	.058	.067	.065	.064	.055	.044
12	.051	.057	.057	.050	.048	.047	.043	.042	.040	.037	.039	.047	.058	.058	.056	.055	.054	.056	.058	.047	.049	.046	.039	.037	.049
13	.037	.034	.035	.031	.029	.030	.022	.015	.020	.022	.029	.033	.035	.039	.047	.053	.050	.041	.037	.031	.027	.021	.020	.018	.031
14	.023	.018	.017	.013	.011	.014	.012	.009	.009	.013	.012	.027	.059	.067	.070	.071	.082	.083	.074	.076	.076	.072	.076	.064	.044
15	.064	.067	.065	.058	.056	.051	.047	.041	.036	.036	.045	.051	.053	.051	.055	.053	.054	.053	.054	.048	.047	.045	.044	.039	.051
16	.036	.033	.032	.029	.027	.023	.023	.024	.022	.025	.026	.024	.026	.026	.031	.033	.033	.031	.030	.026	.025	.025	.024	.026	.027
17	.023	.019	.021	.015	.008	.007	.006	.007	.012	.029	.033	.038	.039	.041	.042	.042	.041	.043	.042	.031	.023	.018	.018	.008	.025
18	.009	.013	.016	.016	.006	.004	.009	.031	.042	.046	.043	.044	.046	.047	.048	.048	.044	.041	.999	.036	.030	.034	.030	.027	.031
19	.029	.029	.024	.024	.023	.021	.019	.020	.020	.030	.040	.051	.061	.067	.066	.064	.065	.066	.059	.057	.062	.059	.059	.047	.044
20	.044	.039	.040	.033	.027	.027	.027	.031	.036	.044	.054	.055	.059	.059	.057	.054	.054	.057	.052	.048	.048	.036	.031	.036	.044
21	.039	.038	.035	.026	.035	.030	.030	.033	.036	.037	.042	.043	.046	.044	.043	.044	.045	.040	.038	.038	.034	.029	.025	.034	.037
22	.034	.030	.031	.027	.031	.029	.022	.025	.030	.031	.036	.036	.040	.046	.042	.046	.044	.044	.043	.039	.039	.033	.035	.027	.035
23	.023	.025	.023	.023	.018	.018	.019	.027	.029	.999	.999	.999	.047	.048	.048	.045	.047	.045	.047	.054	.051	.050	.050	.044	.037
24	.045	.042	.044	.044	.037	.032	.032	.032	.041	.046	.054	.055	.057	.059	.057	.057	.056	.058	.057	.051	.051	.048	.043	.044	.048
25	.045	.032	.030	.023	.021	.020	.015	.018	.029	.038	.043	.052	.056	.053	.053	.056	.061	.999	.043	.047	.043	.038	.040	.036	.039
26	.036	.036	.033	.025	.022	.020	.013	.015	.024	.044	.057	.068	.070	.074	.074	.087	.097	.104	.103	.098	.093	.089	.082	.078	.060
27	.070	.068	.063	.047	.046	.044	.034	.036	.027	.029	.073	.098	.095	.092	.091	.094	.096	.096	.099	.102	.095	.084	.077	.073	
28	.076	.067	.066	.065	.056	.042	.038	.034	.064	.071	.079	.087	.089	.094	.095	.099	.092	.087	.081	.073	.072	.067	.064	.060	.072
29	.057	.049	.045	.038	.028	.032	.023	.030	.025	.023	.040	.064	.082	.075	.065	.062	.060	.057	.047	.050	.045	.053	.055	.045	.048
30	.061	.052	.066	.073	.063	.062	.045	.052	.065	.066	.078	.089	.091	.094	.095	.094	.088	.088	.082	.076	.065	.054	.050	.051	.071
31	.050	.033	.028	.030	.026	.039	.044	.034	.032	.035	.045	.063	.069	.073	.077	.086	.085	.086	.073	.068	.057	.057	.057	.055	.054
AVG	.041	.039	.037	.033	.030	.028	.025	.025	.030	.037	.046	.054	.059	.061	.062	.060	.061	.061	.058	.055	.053	.049	.047	.043	.046
DAYS	30	30	30	30	30	30	29	30	30	29	29	29	30	30	29	30	30	28	29	30	30	30	30	30	712

TOTAL HOURS = 744 NUMBER OF GOOD HOURS = 712 NUMBER OF MISSING HOURS = 32 DATA CAPTURE = 95.70 (PERCENT)
ABOVE THREE ROWS ARE TOTAL HOURLY AVERAGES, TOTAL OBSERVATIONS/HOUR AND DATA CAPTURE STATISTICS
TOTAL AVERAGE = 0.046 MAXIMUM HOURLY VALUE = 0.104 STANDARD DEVIATION = 0.0208



U.S. EPA

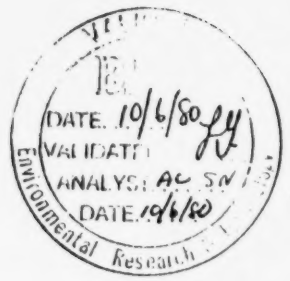
INDIAN RIVER — OZONE (PPM) — DATA FOR AUGUST 1980

	HOURS (LST)																							
HR-BEG	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	AVG
HR-END	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
DAY																									
1	.038	.031	.028	.023	.036	.044	.040	.039	.041	.049	.067	.073	.085	.090	.097	.097	.050	.029	.016	.034	.032	.032	.035	.031	.047
2	.030	.025	.020	.015	.016	.020	.016	.022	.033	.051	.061	.069	.075	.078	.080	.081	.083	.085	.084	.068	.059	.078	.064	.058	.053
3	.055	.049	.046	.045	.045	.042	.040	.042	.043	.053	.061	.067	.071	.070	.074	.066	.066	.066	.067	.060	.057	.055	.054	.051	.056
4	.051	.042	.033	.029	.045	.033	.027	.999	.010	.026	.044	.054	.061	.067	.070	.067	.063	.060	.055	.048	.037	.029	.023	.025	.043
5	.025	.016	.010	.002	.008	.006	.011	.009	.020	.032	.041	.049	.054	.054	.057	.056	.059	.065	.072	.054	.053	.051	.045	.035	.037
6	.030	.042	.042	.039	.035	.036	.030	.030	.031	.039	.050	.049	.053	.058	.062	.059	.053	.058	.064	.058	.048	.040	.048	.047	.046
7	.036	.036	.026	.017	.015	.013	.011	.016	.030	.044	.049	.049	.061	.063	.066	.069	.069	.073	.081	.077	.074	.067	.061	.052	.048
8	.037	.035	.036	.040	.037	.015	.015	.012	.033	.046	.053	.066	.074	.075	.071	.069	.068	.074	.070	.055	.049	.049	.052	.045	.049
9	.045	.044	.040	.027	.018	.016	.011	.015	.027	.045	.055	.062	.067	.071	.073	.069	.073	.082	.091	.084	.071	.055	.045	.041	.051
10	.025	.031	.033	.030	.029	.021	.024	.014	.025	.035	.041	.044	.043	.043	.043	.046	.046	.043	.043	.038	.029	.028	.021	.018	.033
11	.021	.043	.039	.028	.013	.018	.016	.999	.999	.015	.032	.050	.059	.052	.055	.071	.076	.073	.074	.070	.040	.037	.035	.032	.043
12	.027	.023	.021	.017	.017	.013	.005	.007	.019	.022	.030	.039	.035	.035	.040	.055	.065	.077	.080	.076	.065	.048	.032	.021	.036
13	.018	.027	.026	.023	.019	.017	.010	.017	.023	.027	.040	.044	.048	.048	.053	.055	.059	.077	.083	.081	.051	.032	.026	.008	.038
14	.004	.002	.008	.016	.011	.015	.022	.013	.030	.044	.049	.052	.053	.042	.024	.023	.019	.016	.020	.019	.015	.018	.020	.022	.023
15	.027	.029	.032	.035	.030	.029	.028	.027	.029	.032	.033	.031	.034	.050	.048	.033	.025	.041	.041	.031	.024	.024	.027	.026	.032
16	.022	.026	.024	.021	.018	.015	.013	.010	.019	.025	.027	.027	.031	.038	.040	.040	.044	.046	.040	.033	.026	.022	.023	.019	.027
17	.012	.012	.012	.011	.007	.007	.004	.004	.011	.012	.015	.025	.025	.035	.040	.045	.035	.023	.025	.017	.008	.007	.005	.006	.017
18	.016	.021	.018	.015	.017	.016	.017	.003	.007	.022	.018	.021	.027	.022	.021	.017	.024	.027	.021	.022	.019	.016	.017	.017	.018
19	.017	.012	.999	.002	.008	.008	.004	.005	.002	.003	.002	.002	.003	.008	.014	.020	.026	.034	.037	.032	.032	.028	.021	.020	.015
20	.011	.013	.013	.011	.009	.012	.012	.011	.012	.022	.053	.070	.082	.093	.104	.112	.110	.035	.017	.030	.032	.031	.023	.026	.039
21	.045	.039	.035	.031	.026	.019	.015	.019	.017	.020	.018	.020	.023	.026	.030	.025	.029	.034	.999	.999	.018	.023	.026	.023	.025
22	.023	.021	.019	.019	.018	.023	.019	.017	.021	.021	.025	.020	.022	.022	.023	.017	.012	.018	.012	.004	.011	.033	.027	.021	.019
23	.026	.024	.018	.015	.013	.009	.009	.013	.020	.029	.031	.043	.070	.081	.088	.095	.096	.099	.119	.126	.104	.080	.073	.044	.055
24	.029	.027	.030	.021	.029	.019	.021	.026	.043	.049	.999	.999	.050	.060	.084	.070	.054	.059	.079	.077	.065	.037	.039	.036	.046
25	.010	.012	.004	.0	.002	.0	.0	.001	.021	.038	.057	.079	.093	.094	.084	.058	.056	.055	.052	.041	.036	.041	.041	.030	.038
26	.029	.033	.034	.030	.025	.025	.018	.008	.025	.048	.062	.086	.102	.110	.106	.106	.106	.077	.055	.059	.056	.048	.035	.028	.055
27	.021	.016	.010	.015	.022	.025	.032	.038	.045	.054	.068	.081	.090	.094	.101	.109	.115	.116	.108	.091	.077	.070	.062	.052	.063
28	.060	.068	.058	.043	.033	.031	.028	.027	.039	.052	.072	.091	.103	.102	.123	.136	.130	.115	.099	.097	.099	.092	.076	.047	.076
29	.040	.028	.022	.022	.026	.009	.015	.011	.031	.057	.065	.095	.106	.113	.113	.106	.091	.082	.075	.999	.999	.029	.027	.018	.054
30	.011	.008	.010	.010	.009	.009	.008	.005	.010	.014	.019	.023	.025	.025	.026	.025	.025	.023	.016	.014	.012	.011	.010	.010	.015
31	.010	.010	.010	.010	.010	.008	.006	.006	.008	.012	.019	.022	.024	.026	.027	.027	.026	.022	.018	.014	.014	.011	.010	.010	.015
AVG	.027	.027	.025	.021	.021	.018	.017	.016	.024	.033	.042	.050	.056	.060	.062	.062	.060	.058	.057	.052	.044	.039	.036	.030	.039
DAYS	31	31	30	31	31	31	31	29	30	31	30	30	31	31	31	31	31	31	30	29	30	31	31	31	734

TOTAL HOURS = 744 NUMBER OF GOOD HOURS = 734 NUMBER OF MISSING HOURS = 10 DATA CAPTURE = 98.66 (PERCENT)

ABOVE THREE ROWS ARE TOTAL HOURLY AVERAGES, TOTAL OBSERVATIONS/HOUR AND DATA CAPTURE STATISTICS

TOTAL AVERAGE = 0.039 MAXIMUM HOURLY VALUE = 0.136 STANDARD DEVIATION = 0.0266



U.S. EPA

LEWISBURG OZONE (PPM) DATA FOR AUGUST 1980

	HOURS (LST)																							
HR-BEG	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
HR-END	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
DAY																								AVG
1	.030	.032	.031	.026	.037	.040	.046	.056	.059	.068	.063	.057	.062	.067	.078	.078	.075	.076	.071	.065	.049	.034	.033	.032	.053
2	.033	.030	.025	.025	.013	.017	.012	.019	.038	.062	.067	.074	.076	.074	.071	.070	.072	.074	.082	.067	.057	.056	.051	.060	.051
3	.050	.050	.050	.054	.053	.046	.041	.052	.062	.063	.068	.064	.062	.063	.064	.065	.069	.063	.056	.042	.049	.044	.045	.034	.055
4	.034	.025	.027	.030	.024	.024	.021	.020	.028	.052	.063	.062	.069	.066	.056	.062	.055	.045	.040	.049	.051	.047	.043	.026	.042
5	.027	.025	.020	.020	.016	.016	.017	.017	.028	.035	.045	.056	.056	.054	.064	.057	.056	.055	.047	.045	.999	.042	.037	.031	.038
6	.031	.026	.024	.016	.010	.006	.010	.015	.029	.036	.039	.047	.043	.052	.053	.049	.050	.053	.042	.036	.022	.026	.021	.020	.031
7	.022	.010	.013	.022	.021	.018	.018	.022	.026	.032	.042	.053	.065	.065	.060	.055	.050	.047	.046	.041	.030	.017	.023	.028	.034
8	.038	.039	.039	.038	.036	.029	.029	.029	.031	.034	.042	.051	.064	.064	.055	.066	.067	.068	.067	.056	.054	.040	.028	.022	.045
9	.018	.021	.023	.021	.015	.019	.021	.022	.036	.049	.067	.082	.079	.079	.097	.091	.075	.063	.063	.062	.057	.049	.035	.033	.049
10	.032	.025	.023	.022	.023	.018	.016	.021	.039	.054	.064	.070	.077	.080	.074	.077	.072	.079	.072	.055	.047	.037	.025	.030	.047
11	.037	.034	.027	.028	.029	.021	.018	.023	.033	.055	.071	.067	.073	.074	.072	.072	.072	.071	.069	.067	.065	.065	.051	.049	.052
12	.051	.060	.060	.051	.049	.048	.045	.044	.038	.042	.048	.054	.058	.063	.070	.071	.069	.074	.075	.999	.051	.046	.039	.034	.054
13	.025	.020	.020	.025	.022	.019	.019	.024	.025	.034	.048	.069	.067	.065	.067	.068	.072	.068	.063	.045	.039	.035	.024	.017	.041
14	.019	.023	.028	.021	.018	.017	.019	.021	.029	.041	.067	.071	.072	.075	.071	.070	.067	.065	.061	.060	.046	.037	.030	.026	.044
15	.021	.022	.020	.020	.018	.014	.012	.016	.034	.053	.060	.067	.070	.071	.066	.065	.061	.060	.050	.039	.048	.053	.056	.064	.044
16	.054	.052	.050	.049	.045	.038	.035	.038	.040	.037	.048	.051	.051	.049	.047	.042	.040	.044	.044	.040	.031	.024	.023	.019	.041
17	.022	.034	.037	.037	.034	.033	.034	.031	.032	.034	.036	.036	.037	.038	.034	.041	.040	.035	.033	.029	.028	.025	.022	.017	.032
18	.018	.016	.018	.020	.016	.014	.009	.012	.014	.013	.018	.021	.018	.025	.035	.030	.031	.027	.031	.038	.036	.038	.035	.031	.023
19	.031	.030	.026	.023	.025	.027	.026	.023	.023	.027	.037	.046	.043	.046	.050	.045	.046	.048	.047	.037	.023	.019	.021	.018	.033
20	.020	.021	.025	.031	.032	.035	.031	.999	.032	.037	.040	.044	.053	.060	.063	.065	.059	.051	.049	.043	.041	.028	.018	.020	.039
21	.025	.022	.023	.027	.029	.023	.018	.026	.036	.037	.044	.045	.055	.064	.072	.069	.058	.051	.047	.045	.031	.021	.046	.048	.040
22	.046	.041	.039	.037	.035	.032	.025	.036	.040	.041	.041	.046	.050	.054	.049	.044	.050	.052	.048	.043	.042	.039	.042	.042	.042
23	.034	.034	.032	.032	.034	.031	.033	.043	.049	.052	.054	.055	.056	.052	.053	.049	.045	.045	.035	.033	.029	.028	.022	.019	.040
24	.019	.021	.019	.020	.021	.025	.027	.032	.034	.035	.033	.038	.048	.053	.051	.050	.052	.046	.040	.029	.027	.017	.017	.015	.032
25	.013	.013	.014	.016	.017	.023	.029	.026	.029	.033	.047	.056	.058	.060	.059	.059	.055	.049	.043	.031	.027	.021	.019	.019	.034
26	.015	.009	.008	.010	.009	.013	.015	.017	.022	.037	.058	.070	.069	.071	.072	.065	.063	.057	.048	.034	.028	.024	.023	.023	.036
27	.019	.016	.011	.012	.014	.018	.014	.016	.021	.031	.056	.069	.073	.074	.074	.073	.067	.067	.055	.035	.030	.031	.025	.017	.038
28	.018	.014	.015	.013	.014	.013	.013	.015	.018	.029	.055	.066	.079	.079	.084	.085	.080	.070	.049	.999	.999	.025	.020	.020	.040
29	.020	.019	.014	.021	.018	.021	.017	.023	.028	.037	.053	.075	.079	.078	.076	.082	.090	.085	.076	.057	.048	.037	.032	.029	.046
30	.021	.025	.021	.024	.019	.020	.021	.027	.032	.045	.063	.069	.062	.057	.049	.048	.048	.047	.041	.037	.028	.022	.029	.030	.037
31	.026	.028	.025	.025	.025	.023	.022	.020	.025	.030	.038	.050	.056	.056	.060	.060	.059	.049	.047	.042	.041	.039	.029	.021	.037
AVG	.028	.027	.026	.026	.025	.024	.023	.026	.033	.041	.051	.057	.061	.062	.063	.062	.060	.058	.053	.045	.040	.034	.031	.029	.041
DAYS	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	29	29	31	31	31	739

TOTAL HOURS = 744 NUMBER OF GOOD HOURS = 739 NUMBER OF MISSING HOURS = 5 DATA CAPTURE = 99.33 (PERCENT)
ABOVE THREE ROWS ARE TOTAL HOURLY AVERAGES, TOTAL OBSERVATIONS/HOUR AND DATA CAPTURE STATISTICS
TOTAL AVERAGE = 0.041 MAXIMUM HOURLY VALUE = 0.097 STANDARD DEVIATION = 0.0190

U.S. EPA

MONTAGUE — OZONE — (PPM) — DATA FOR SEPTEMBER 1980

HOURS (LST)

HR-BEG	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
HR-END	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVG
DAY																									
1	.013	.007	.011	.008	.007	.005	.005	.009	.016	.024	.060	.075	.073	.060	.061	.068	.064	.044	.031	.021	.058	.048	.034	.030	.035
2	.024	.027	.026	.019	.015	.012	.014	.016	.025	.048	.054	.065	.071	.065	.080	.073	.119	.114	.071	.061	.035	.020	.021	.019	.046
3	.020	.022	.021	.013	.021	.016	.012	.027	.034	.036	.038	.040	.040	.043	.043	.041	.037	.033	.019	.013	.002	.0	.0	.0	.024
4	.0	.0	.0	.0	.0	.0	.0	.003	.007	.014	.027	.030	.045	.046	.052	.063	.074	.999	.050	.050	.048	.047	.044	.043	.024
5	.056	.055	.056	.050	.036	.055	.059	.057	.056	.050	.046	.041	.047	.045	.044	.041	.042	.041	.036	.031	.027	.033	.032	.030	.045
6	.027	.027	.019	.002	.0	.0	.0	.008	.032	.036	.040	.042	.046	.049	.046	.041	.044	.037	.028	.017	.014	.012	.011	.005	.024
7	.001	.0	.0	.0	.0	.0	.001	.017	.023	.026	.028	.028	.025	.025	.026	.025	.023	.020	.015	.012	.002	.0	.0	.0	.012
8	.0	.0	.0	.0	.0	.0	.0	.003	.012	.021	.026	.030	.033	.032	.033	.037	.038	.030	.019	.015	.005	.0	.0	.0	.014
9	.0	.0	.0	.0	.0	.0	.0	.002	.007	.018	.032	.036	.042	.046	.050	.054	.051	.053	.048	.043	.032	.027	.025	.024	.023
10	.019	.012	.008	.017	.027	.019	.014	.010	.016	.018	.018	.019	.019	.020	.021	.020	.022	.020	.009	.002	.003	.003	.002	.007	.013
11	.014	.007	.004	.0	.0	.0	.0	.010	.022	.025	.035	.039	.040	.040	.042	.040	.042	.044	.043	.041	.033	.999	.025	.027	.025
12	.019	.021	.024	.020	.020	.017	.013	.019	.024	.030	.035	.038	.041	.038	.036	.033	.034	.032	.025	.009	.012	.012	.010	.010	.024
13	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
14	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
15	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
16	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
17	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
18	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
19	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
20	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
21	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
22	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
23	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
24	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
25	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
26	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
27	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
28	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
29	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
30	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
AVG	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.027
DAYS	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	12	11	12	12	286

TOTAL HOURS = 288 NUMBER OF 6000 HOURS = 286 NUMBER OF MISSING HOURS = 2 DATA CAPTURE = 99.31 (PERCENT)

ABOVE IS 1-HR MAXS AND TOTAL HOURLY AVERAGES, TOTAL OBSERVATIONS/HOUR AND DATA CAPTURE STATISTICS

TOTAL AVERAGE = 0.027* MAXIMUM HOURLY VALUE = 0.119 STANDARD DEVIATION = 0.0210

VALIDATED DATE 10/24/80 VALIDATED BY: ANALYST AC DATE 10/23/80 Environmental Research & Technology

U.S. EPA

SCRANTON OZONE (PPM) DATA FOR SEPTEMBER 1980

	HOURS (LST)																							
HR-BEG	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
HR-END	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
DAY																								AVG
1	.049	.044	.035	.028	.029	.031	.022	.029	.038	.060	.067	.070	.073	.074	.080	.087	.089	.079	.075	.070	.067	.065	.065	.053	.057
2	.045	.048	.046	.047	.043	.041	.036	.020	.030	.048	.059	.062	.067	.078	.081	.076	.071	.999	.999	.035	.037	.031	.026	.026	.048
3	.029	.035	.036	.040	.042	.038	.026	.027	.036	.042	.046	.049	.053	.053	.056	.056	.057	.056	.051	.049	.044	.042	.035	.031	.043
4	.029	.023	.021	.013	.010	.007	.008	.012	.014	.016	.038	.058	.070	.073	.074	.078	.081	.087	.087	.085	.080	.073	.070	.055	.053
5	.035	.026	.023	.022	.022	.022	.045	.038	.040	.047	.047	.052	.059	.064	.066	.071	.071	.071	.069	.061	.054	.056	.060	.051	.059
6	.044	.043	.036	.026	.019	.016	.013	.015	.020	.018	.038	.053	.056	.046	.058	.060	.061	.069	.072	.073	.073	.072	.064	.058	.046
7	.035	.030	.040	.036	.037	.035	.028	.025	.026	.031	.035	.037	.041	.045	.043	.045	.043	.042	.044	.046	.044	.035	.033	.032	.034
8	.033	.027	.024	.020	.015	.013	.011	.011	.019	.037	.040	.042	.042	.042	.041	.041	.043	.041	.999	.029	.025	.027	.021	.027	.029
9	.025	.017	.015	.016	.011	.010	.005	.010	.012	.030	.054	.064	.072	.077	.082	.080	.083	.080	.081	.070	.070	.070	.067	.042	.038
10	.029	.020	.020	.021	.018	.018	.016	.015	.019	.024	.025	.030	.034	.036	.037	.041	.043	.042	.045	.044	.040	.039	.034	.029	.030
11	.028	.023	.017	.015	.013	.013	.000	.005	.007	.020	.052	.057	.058	.060	.063	.065	.067	.058	.056	.054	.057	.056	.056	.055	.040
12	.035	.030	.024	.036	.037	.029	.025	.021	.025	.026	.040	.054	.054	.062	.069	.071	.068	.999	.999	.062	.053	.038	.039	.041	.040
13	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
14	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
15	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
16	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
17	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
18	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
19	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
20	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
21	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
22	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
23	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
24	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
25	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
26	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
27	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
28	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
29	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
30	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
AVG	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.045
DAYS	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10	9	12	12	12	12	12	283

TOTAL HOURS = 288 NUMBER OF GOOD HOURS = 283 NUMBER OF MISSING HOURS = 5 DATA CAPTURE = 98.26 (PERCENT)

ABOVE THREE HOURS ARE TOTAL HOURLY AVERAGES, TOTAL OBSERVATIONS/HOUR AND DATA CAPTURE STATISTICS

TOTAL AVERAGE = 0.045* MAXIMUM HOURLY VALUE = 0.096 STANDARD DEVIATION = 0.0212

DATE 10/24/80
VALIDATED BY
DATE 10/22/80

U.S. EPA

INDIAN RIVER OZONE (PPM) DATA FOR SEPTEMBER 1980

HOURS (EST)																									
MONTH 00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
HR-END 01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	AVG	
DAY																									
1	.014	.013	.012	.010	.009	.008	.008	.008	.009	.018	.032	.046	.058	.062	.060	.062	.059	.047	.036	.026	.022	.021	.016	.017	.027
2	.016	.015	.013	.010	.007	.007	.006	.006	.013	.022	.034	.045	.056	.063	.059	.056	.064	.073	.065	.051	.035	.029	.022	.022	.033
3	.021	.029	.025	.029	.025	.022	.019	.018	.020	.029	.031	.027	.036	.047	.058	.065	.060	.057	.049	.039	.002	.001	.001	.002	.020
4	.002	.002	.003	.001	.001	.0	.0	.0	.002	.012	.023	.032	.038	.044	.043	.045	.044	.047	.045	.039	.029	.016	.017	.022	
5	.020	.020	.025	.012	.009	.011	.007	.011	.015	.025	.032	.026	.023	.025	.019	.022	.031	.032	.034	.023	.012	.013	.005	.6	.019
6	.002	.001	.001	.002	.001	.002	.0	.001	.005	.010	.015	.024	.040	.045	.052	.063	.062	.053	.046	.031	.016	.013	.010	.015	.021
7	.018	.018	.018	.019	.009	.002	.036	.026	.029	.034	.040	.048	.056	.055	.051	.045	.042	.047	.045	.035	.032	.027	.024	.021	.033
8	.019	.005	.0	.001	.001	.003	.006	.005	.007	.015	.019	.021	.029	.036	.034	.043	.043	.048	.046	.042	.032	.019	.013	.017	.021
9	.023	.017	.022	.014	.009	.010	.002	.0	.014	.036	.045	.058	.063	.059	.061	.059	.068	.071	.068	.055	.040	.040	.044	.044	.039
10	.039	.035	.030	.029	.025	.025	.025	.010	.015	.019	.029	.020	.017	.020	.019	.027	.034	.038	.033	.017	.009	.001	.002	.0	.021
11	.002	.003	.007	.014	.014	.013	.008	.005	.006	.019	.020	.029	.040	.054	.061	.066	.075	.059	.054	.040	.029	.019	.021	.023	.029
12	.020	.030	.023	.029	.025	.019	.025	.015	.023	.035	.047	.065	.071	.081	.091	.080	.077	.079	.075	.999	.999	.042	.053	.056	.043
13	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
14	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
15	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
16	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
17	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
18	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
19	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
20	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
21	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
22	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
23	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
24	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
25	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
26	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
27	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
28	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
29	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
30	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
AVG	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.020
DAYS	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	10	11	12	12	12	284

TOTAL HOURS = 288 NUMBER OF GOOD HOURS = 284 NUMBER OF MISSING HOURS = 4 DATA CAPTURE = 98.61 (PERCENT)

ANNUAL (MAY) HOURS ARE TOTAL HOURLY AVERAGES, TOTAL OBSERVATIONS/MONTH AND DATA CAPTURE STATISTICS

TOTAL AVERAGE = 0.0260 MAXIMUM HOURLY VALUE = 0.091 STANDARD DEVIATION = 0.0206

DATE 10/14/80
VALIDATED BY
DATE 11/22/80

U.S. EPA

LEAISBURG OZONE (PPM) DATA FOR SEPTEMBER 1980

HOURS (EST)																									
HR-BEG	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
HR-END	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
DAY																									AVG
1	.021	.016	.020	.016	.010	.016	.018	.024	.025	.038	.047	.047	.051	.049	.048	.051	.048	.049	.041	.031	.025	.022	.014	.010	.031
2	.013	.011	.011	.013	.010	.010	.006	.010	.019	.037	.047	.050	.049	.052	.051	.054	.059	.063	.049	.045	.045	.047	.044	.035	.033
3	.030	.014	.033	.031	.021	.016	.013	.024	.030	.034	.038	.037	.041	.045	.049	.051	.058	.052	.038	.034	.025	.022	.022	.018	.033
4	.025	.018	.010	.021	.016	.019	.020	.023	.030	.033	.060	.061	.065	.065	.065	.066	.064	.059	.054	.054	.034	.026	.023	.023	.040
5	.023	.025	.025	.024	.025	.031	.028	.030	.027	.035	.048	.050	.055	.054	.055	.057	.063	.068	.070	.049	.055	.038	.038	.025	.041
6	.025	.020	.024	.030	.031	.034	.045	.048	.053	.047	.048	.052	.062	.064	.067	.073	.068	.060	.078	.066	.050	.046	.045	.038	.050
7	.031	.028	.027	.023	.024	.020	.022	.032	.039	.048	.061	.065	.061	.060	.060	.061	.062	.058	.051	.042	.034	.030	.025	.019	.041
8	.026	.025	.026	.016	.016	.018	.013	.020	.024	.034	.050	.061	.069	.071	.072	.071	.069	.067	.047	.037	.021	.025	.021	.020	.036
9	.019	.022	.019	.017	.017	.015	.013	.021	.026	.042	.055	.071	.072	.070	.070	.067	.062	.056	.043	.037	.034	.031	.030	.029	.039
10	.040	.043	.047	.048	.043	.045	.037	.036	.037	.041	.043	.049	.047	.048	.048	.051	.044	.999	.999	.999	.033	.021	.026	.041	.041
11	.017	.015	.015	.012	.016	.011	.010	.013	.017	.025	.042	.052	.058	.060	.059	.056	.056	.052	.044	.033	.026	.005	.021	.019	.036
12	.017	.017	.017	.015	.014	.013	.010	.014	.020	.035	.048	.062	.074	.070	.066	.063	.062	.060	.048	.039	.034	.029	.026	.023	.036
13	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
14	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
15	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
16	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
17	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
18	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
19	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
20	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
21	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
22	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
23	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
24	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
25	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
26	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
27	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
28	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
29	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
30	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999
AVG	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.999	.033
DATA	1c	1c	1c	1c	1c	12	12	12	1c	1c	12	12	12	12	1c	12	12	11	11	10	11	12	12	12	283

TOTAL HOURS = 288 NUMBER OF GOOD HOURS = 283 NUMBER OF MISSING HOURS = 5 DATA CAPTURE = 98.26 (PERCENT)
ABOVE TABLE HOURS ARE TOTAL HOURLY AVERAGES, TOTAL OBSERVATIONS/HOUR AND DATA CAPTURE STATISTICS
TOTAL AVERAGE = 0.036* MAXIMUM HOURLY VALUE = 0.080 STANDARD DEVIATION = 0.0183

APPENDIX B

Daily span delta percents were calculated using the following equation:

$$\text{Delta } \% = \frac{Y - X}{X} \times 100$$

where:

Y = Analyzer's indicated concentration

X = Known concentration of generated test atmosphere

DAILY SPAN (DELTAS) SUMMARY FOR U.S. EPA OZONE JULY 1980

DAY	MONTAGUE	SCRANTON	INDIAN RIVER	LEWISBURG
1	+6.5	-7.0	NO SPAN	-17.94
2	+3.2	-5.0	NO SPAN	-17.94
3	0	-7.8	-6.7	-19.85
4	-3.2	-7.8	-5.5	-19.85
5	0	-10.9	-8.7	-19.85
6	-3.2	-8.9	-9.4	-17.94
7	-1.6	NO SPAN	-7.5	-19.85
8	+1.6	-7.8	-5.5	-19.85
9	NO SPAN	-10.9	-7.1	NO SPAN
10	-3.2	-11.6	-8.7	NO SPAN
11	-3.2	-11.6	-7.9	-23.66
12	-1.6	-7.7	-8.7	-19.85
13	0	-5.5	-14.6	-21.76
14	-1.6	-7.7	-12.2	-18.60
15	-1.6	-6.6	-14.6	-18.60
16	-3.2	-8.8	-14.6	-18.60
17	-3.2	-12.1	-14.6	-18.60
18	-3.2	NO SPAN	NO SPAN	-18.60
19	-1.6	-12.1	NO SPAN	-24.42
20	-3.2	-17.6	NO SPAN	-24.42
21	-6.4	NO SPAN	NO SPAN	-18.60
22	-6.4	NO SPAN	-12.2	NO SPAN
23	-22.6	-2.2	-14.6	NO SPAN
24	-1.6	-3.3	-15.9	-1.16
25	+1.6	-5.5	-14.6	-1.16
26	+1.6	-6.6	-14.6	-1.16
27	-3.2	-6.6	-14.6	-1.16
28	-3.2	-6.6	-14.6	-1.16
29	-3.2	-2.2	-15.9	-1.16
30	-12.9	-3.3	-15.9	-1.16
31	0	NO SPAN	-15.9	-1.16

DAILY SPAN (DELTAS) SUMMARY FOR U.S. EPA OZONE AUGUST 1980

DAY	MONTAGUE	SCRANTON	INDIAN RIVER	LEWISBURG
1	0	-2.2	-17.1	-1.16
2	-1.6	-5.5	-23.2	-1.16
3	-3.0	NO SPAN	-23.2	NO SPAN
4	-4.8	NO SPAN	NO SPAN	-1.16
5	-3.0	-3.3	-20.7	-1.16
6	-3.0	-4.4	-20.7	-1.16
7	-3.0	-7.7	-20.7	-1.16
8	-1.6	-11.0	-20.7	-1.16
9	-4.8	NO SPAN	-20.7	-1.16
10	-4.8	-8.8	-20.7	-1.16
11	NO SPAN	NO SPAN	-20.7	NO SPAN
12	1.6	-7.7	-23.2	-1.16
13	1.6	-3.3	-20.7	-1.16
14	3.0	-3.3	-23.2	-1.16
15	3.0	-4.4	-23.2	-1.16
16	1.6	-3.3	-20.7	-1.16
17	3.0	NO SPAN	-18.3	-1.16
18	3.0	-5.5	-19.5	-1.16
19	-3.0	-4.4	NO SPAN	-1.16
20	-3.0	-3.3	-18.3	-1.16
21	-3.0	-3.3	NO SPAN	-1.16
22	-1.6	-3.3	NO SPAN	-1.16
23	-1.6	-3.3	NO SPAN	NO SPAN
24	0	-5.5	NO SPAN	-1.16
25	0	-3.3	NO SPAN	-1.16
26	-1.6	-6.6	-2.4	-1.16
27	-3.0	-5.5	NO SPAN	-1.16
28	-3.0	-7.7	NO SPAN	-1.16
29	0	-6.6	NO SPAN	-1.16
30	4.8	-13.2	-26.8	-1.16
31	-1.6	-14.3	-25.8	-1.16

DAILY SPAN SUMMARY (DELTA %) FOR U.S. EPA OZONE SEPTEMBER 1980

DAY	MONTAGUE	SCRANTON	INDIAN RIVER	LEWISBURG
1	-4.8	-13.2	-26.8	0
2	-3.0	-15.4	-26.8	-1.16
3	-1.6	-9.9	-26.8	FULL SCALE
4	1.6	-5.5	-32.9	FULL SCALE
5	-3.0	-9.9	-26.8	FULL SCALE
6	0	-6.6	NO SPAN	1.16
7	-3.0	-9.9	-26.8	0
8	1.6	-7.7	-26.8	-1.16
9	1.6	-12.1	-26.8	0
10	-3.0	-12.1	-26.8	1.16
11	0	-7.7	-26.8	-4.65
12	4.8	-8.8	NO SPAN	-3.49

MULTIPOINT SUMMARY SHEET
****

NETWORK: USEPA O3 STUDY

TEAM/ANALYST: TEAM B/ ARTHUR C.

SITE	PAR.	DATE	REASON	S/N	%	COMMENTS/DATA ACTION
1	03	7-17-80	TRACKING	75	-2.2%	
1	03	7-23-80	TRACKING	75	-4.4%	
1	03	7-30-80	TRACKING	75	-6.6%	
2	03	7-07-80	TRACKING	70	-12.3%	
2	03	7-13-80	TRACKING	70	-13.7%	
2	03	7-22-80	DASIBI-CAL	70	-16.2%	
2	03	7-28-80	TRACKING	70	-6.2%	
3	03	7-07-80	TRACKING	78	-0.7%	
3	03	7-14-80	TRACKING	78	-7.4%	
3	03	7-21-80	TRACKING	78	-8.0%	
3	03	7-28-80	TRACKING	78	-9.9%	
4	03	6-30-80	TRACKING	63	-10.5%	
4	03	7-08-80	TRACKING	63	-19.3%	
4	03	7-11-80	AUDIT	63	-23.0%	
4	03	7-15-80	TRACKING	63	-20.3%	
4	03	7-22-80	TRACKING	63	-25.4%	
4	03	7-23-80	DASIBI-CAL	63	-19.9%	
4	03	7-29-80	TRACKING	63	-3.6%	
		AUGUST MP'S				
1	03	8-07-80	TRACKING	75	-5.6%	
1	03	8-14-80	TRACKING	75	-0.05%	
1	03	8-21-80	TRACKING	75	-4.6%	
1	03	8-24-80	AUDIT	75	-13.8%	
1	03	8-28-80	TRACKING	75	-2.8%	
2	03	8-04-80	TRACKING	70	-10.4%	
2	03	8-11-80	TRACKING	70	-8.1%	
2	03	8-18-80	TRACKING	70	-7.7%	
2	03	8-22-80	AUDIT	70	+4.9%	
2	03	8-25-80	TRACKING	70	-9.9%	
3	03	8-04-80	TRACKING	78	-11.4%	
3	03	8-11-80	TRACKING	78	-15.8%	
3	03	8-19-80	TRACKING	78	-16.6%	
3	03	8-21-80	DASIBI-CAL	78	-5.8%	
3	03	8-24-80	AUDIT	78	+12.5%	
3	03	8-29-80	TRACKING	78	-18.9%	
4	03	8-05-80	TRACKING	63	-2.7%	
4	03	8-12-80	TRACKING	63	-4.7%	
4	03	8-20-80	TRACKING	63	-5.0%	
4	03	8-26-80	TRACKING	63	-2.3%	
		SEPTEMBER MPS				
1	03	9-04-80	TRACKING	75	-0.7%	
1	03	9-11-80	TRACKING	75	+4.2%	
1	03	9-25-80	DASIBI-CAL	75	-1.27%	SHUTDOWN
2	03	9-02-80	TRACKING	70	-13.1%	
2	03	9-08-80	TRACKING	70	-13.1%	
2	03	9-12-80	DASIBI-CAL	70	+1.13%	SHUTDOWN
3	03	9-03-80	TRACKING	78	-23.4%	
3	03	9-12-80	TRACKING	78	-24.5%	
3	03	9-17-80	DASIBI-CAL	78	-9.23%	SHUTDOWN
4	03	9-16-80	DASIBI-CAL	63	-4.3%	SHUTDOWN

APPENDIX C

ERT STANDARD OPERATING PROCEDURES

Number	Rev.	Title
2630	1	Routine Field Operations and Maintenance
2600	1	Field Calibration of Continuous Air Quality Analyzers
2901-001	0	Documentation of Field Calibration of Continuous Air Quality Analyzers
2630-005	0	Calibration Control Logs and Charts
2000-261	A	Multipoint Span Check/Field Calibration: Monitor Labs 8410 Ozone Analyzer
2600-850	0	Strip Chart Recorder Calibration
2600-100	0	Calibration Check/Audit Using a Dasibi 1003 PC or 1003 RS
2750	0	Test Equipment Calibration and Repair
2600-001	0	Precision Checks and Zero and Span Checks of Continuous Analyzers
2400	0	Traceability of Standards
2580-001	0	Flowmeter Calibration
4000	0	Data Validation